NASA TM-79325

NASA'S UNIVERSITY PROGRAM

ACTIVE GRANTS & RESEARCH CONTRACTS

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NASA
National Aeronautics and Space Administration

Office of University Affairs
Washington, D.C. 20546

FISCAL YEAR 1977

IMPORTANT NOTICE

This report is compiled primarily from information obtained from two internal NASA sources:

1. "CASE Report on Support of Colleges and Universities" (NASA Form 1356).
2. "Individual Procurement Action Report" (NASA Form 507).

Therefore, other sources should be used for completing Forms 507 or 1356.

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ACTIVE GRANTS AND RESEARCH CONTRACTS

FISCAL YEAR 1977

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Acknowledgements

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Additional Copies

This publication is available from the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, Virginia 22161 for $6.25.

FOREWORD

As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The Office of University Affairs (OUA) serves as a focal point for NASA's relationships with colleges and universities. One of its roles is to provide information on the NASA University Program. The present document is designed to serve several purposes and a wide range of audiences from private individuals to NASA employees. The emphasis is on the technical content of the program, rather than on fiscal data, which is available separately from OUA. As some terminology will not be familiar to all readers, a "User's Guide" is included to facilitate the fullest use of the material related to the interests of any particular reader.

Information on obtaining reports resulting from these projects may be obtained from: NASA, Scientific and Technical Information Office, Code NST, Washington, DC 20546.

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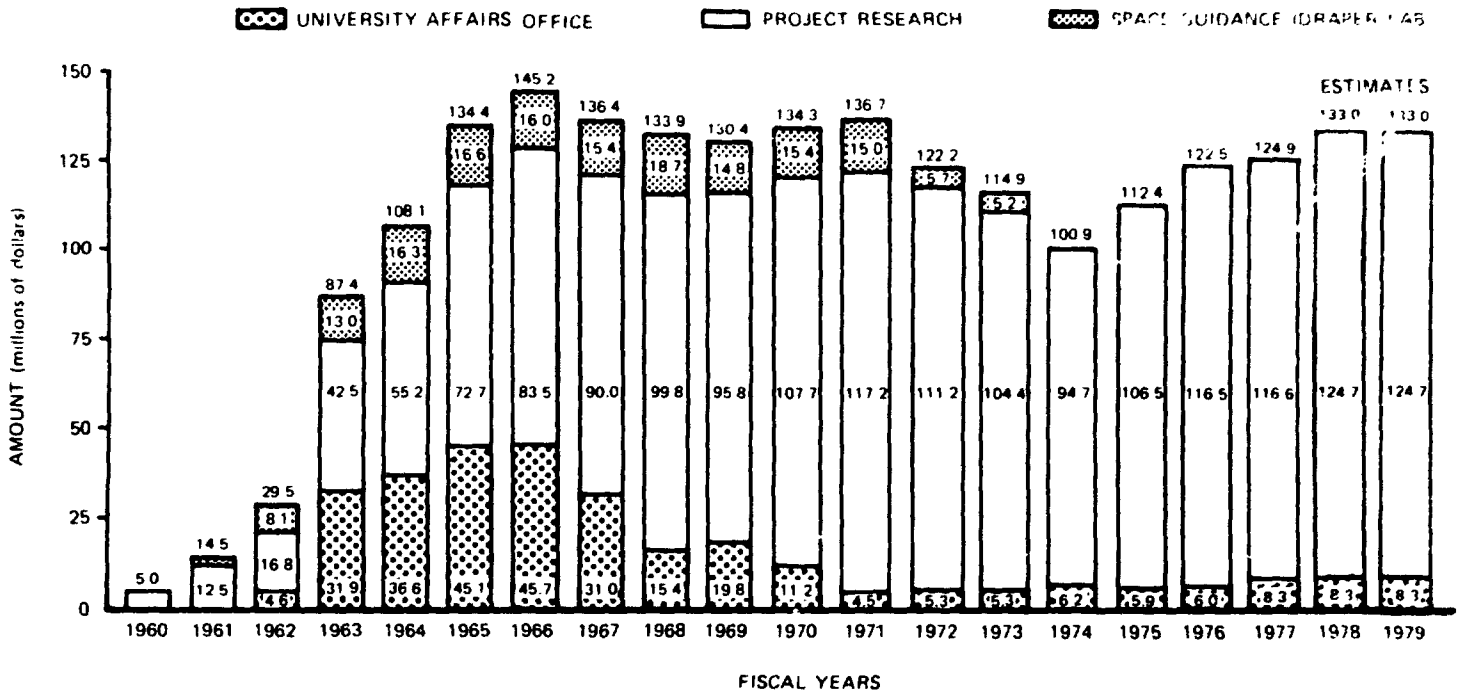
NASA OBLIGATIONS TO UNIVERSITIES



Notes 1 Excludes obligations to or through Federally Funded Research and Development Centers (JPL, Lincoln Lab , SREL)

2 Change in status from "university" to "non-profit" for three organizations accounts for $10 1M of the difference between FY 73 and FY 74. (Draper Lab, ERIM, Dudley Observatory)

3. Office of University Affairs includes 1962-1971 Sustaining University Program

4 Omitted Obligations. Transition Period (July- Sept 1976), $27 7M; FY 59, $3 6M

Source NASA University Affairs Office

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TABLE OF CONTENTS

This report includes data on projects active during Fiscal Year 1977 and projects initiated during the transition period (July – September 1976).

	Page		*Page*
Alabama	1	Nebraska	124
Alaska	6	Nevada	124
Arizona	6	New Hampshire	125
Arkansas	12	New Jersey	126
California	12	New Mexico	129
Colorado	47	New York	132
Connecticut	55	North Carolina	146
Delaware	56	Ohio	149
District of Columbia	57	Oklahoma	156
Florida	62	Oregon	157
Georgia	66	Pennsylvania	159
Hawaii	71	Rhode Island	166
Illinois	72	South Carolina	167
Indiana	77	South Dakota	168
Iowa	81	Tennessee	168
Kansas	83	Texas	172
Kentucky	86	Utah	184
Louisiana	87	Vermont	186
Maryland	89	Virginia	186
Massachusetts	97	Washington	197
Michigan	111	West Virginia	199
Minnesota	116	Wisconsin	199
Mississippi	119	Wyoming	202
Missouri	121	Foreign Countries	203
Montana	124		

Appendix A Cross Index by Grant/Contract Number 207

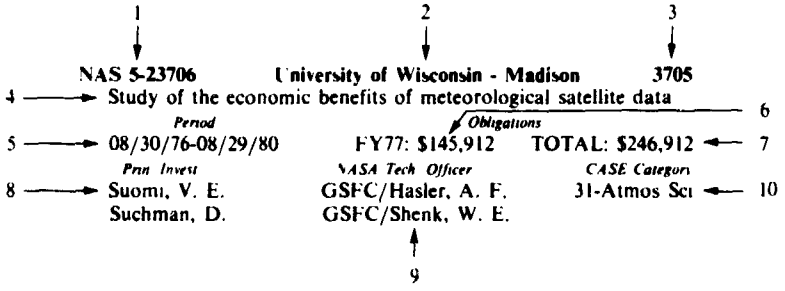
Appendix B Cross Index by Field of Science and Engineering 223

Appendix C Cross Index by First Technical Officer Location 273

USER'S GUIDE

The University Program Report provides current information and related statistics for each grant or research contract active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

I. Typical Citation



1. Grant or Contract Number.
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.

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II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

Abbrev.	Code	Installation Name and Address	Telephone Number for Information
ARC	21	Ames Research Center NASA Moffett Field, CA 94035	415/965-5000
DFRC	24	Dryden Flight Research Center NASA P.O. Box 273 Edwards, CA 93523	805/258-3311
GSFC	51	Goddard Space Flight Center NASA Greenbelt, MD 20771	301/982-5042
JPL	55	Jet Propulsion Laboratory 4800 Oak Grove Drive Pasadena, CA 91103	213/354-4321
JSC	72	Johnson Space Center NASA Houston, TX 77058	713/483-3111
KSC	76	Kennedy Space Center NASA Kennedy Space Center, FL 32899	305/867-7113
LARC	23	Langley Research Center NASA Langley Station Hampton, VA 23665	804/827-1110
LERC	22	Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135	216/433-4000
MSFC	62	Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812	205/453-2121
NSTL	54	National Space Technology Laboratories NASA Bay St. Louis, MS 39520	601/688-2211

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WFC	53	Wallops Flight Center NASA Wallops Island, VA 23337	804/824-3411
WTR	--	Western Launch Operations Division P.O. Box 425 Lompoc, CA 93436	805/866-1611
HQ	10	NASA Headquarters Washington, DC 20546	202/755-2320

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-P, which denotes a particular office and general area of responsibility. (P is the Office of University Affairs.) A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) on behalf of the Committee on Academic Science and Engineering (CASE) of the Federal Council for Science and Technology (FCST) operates a government-wide system for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in Appendix B.

IV. Cross-Indexes

The cross-indexed Appendices are related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant or contract anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in any one of the Appendices, the associated accession number allows ready location of the full description in the body of the report.

Appendix A — Given only the grant or contract number this index enables the reader to locate the citation. The first page tells how to distinguish grants from contracts.

Appendix B — This index provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field.

Appendix C — The types of effort sponsored by each NASA installation may be determined from this index.

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ALABAMA

NAS 9-14770 **Alabama A&M University** **1000**
Communication system performance evaluation based upon pseudonoise testing

Period	Obligations	
10/20/75-01/31/78	FY77: $20,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weathers, G. D.	JSC/Teasdale, W. E.	45-Elec Engr

NGR 01-001-023 **Alabama A&M University** **1001**
Development of remote sensing applications for natural resource study and management

Period	Obligations	
06/13/73-12/31/77	FY77:	TOTAL: $116,124
Prin Invest	*NASA Tech Officer*	*CASE Category*
Montgomery, O. L.	MSFC/Downs, S. W., Jr.	51-Biology
	MSFC/Cagle, F.	

NSG 8001 **Alabama A&M University** **1002**
Application of transition radiations to detect charged particles in cosmic rays

Period	Obligations	
01/02/74-04/01/78	FY77:	TOTAL: $16,818
Prin Invest	*NASA Tech Officer*	*CASE Category*
George, M. C.	MSFC/Parnell, T. A.	11-Astronomy
	MSFC/Kent, M. I.	

NSG 8033 **Alabama A&M University** **1003**
The study of crystals for space processing and the effects of 0-gravity

Period	Obligations	
01/15/76-05/31/78	FY77: $27,792	TOTAL: $52,046
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lal, R. B.	MSFC/Bannister, T. C.	13-Physics
	MSFC/Thomas, P. E.	

NSG 8037 **Alabama A&M University** **1004**
Atmospheric effects on coherent laser systems

Period	Obligations	
06/01/76-05/31/78	FY77: $22,898	TOTAL: $43,384
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murty, S. S.	MSFC/Bilbro, J. W.	13-Physics
	MSFC/Kent, M. I.	

NSG 8041 **Alabama A&M University** **1005**
Parametric study of rock pile thermal storage for solar heating

Period	Obligations	
06/01/76-07/31/78	FY77: $26,621	TOTAL: $62,677
Prin Invest	*NASA Tech Officer*	*CASE Category*
Saha, H.	MSFC/Humphries, W. R.	46-Mech Engr
	MSFC/ZurBurg, F. R.	

NSG 8042 **Alabama A&M University** **1006**
Preparation of guinea pig macrophages for electrophoretic experiments in space

Period	Obligations	
06/01/76-05/31/78	FY77:	TOTAL: $27,235
Prin Invest	*NASA Tech Officer*	*CASE Category*
Savage, J.	MSFC/Allen, R. E.	51-Biology
Grayson, G.	MSFC/Kent, M. I.	

NSG 8051 **Alabama A&M University** **1007**
Space processing of biological materials

Period	Obligations	
06/01/77-05/31/78	FY77: $25,693	TOTAL: $25,693
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gibson, W. L.	MSFC/Snyder, R. S.	51-Biology
	MSFC/Kent, M. I.	

NSG 8057 **Alabama A&M University** **1008**
Evaluation of digital system design languages

Period	Obligations	
10/01/77-09/30/78	FY77: $21,990	TOTAL: $21,990
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shiva, S. G.	MSFC/Gould, J. M.	45-Elec Engr
	MSFC/Kent, M. I.	

NAS 8-28058 **Athens State College** **1009**
Chemical analysis of outgassing contaminant on spacecraft surfaces

Period	Obligations	
10/27/71-12/05/76	FY77:	TOTAL: $93,697
Prin Invest	*NASA Tech Officer*	*CASE Category*
McNutt, R. C.	MSFC/Fountain, J. A.	13-Physics
	MSFC/Miller, E. R.	

NAS 8-31731 **Athens State College** **1010**
Vapor transport mechanisms

Period	Obligations	
10/08/75-01/07/78	FY77: $28,000	TOTAL: $53,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Workman, G.L.	MSFC/Zwiener, ' M.	12-Chemistry
	MSFC/Adams, V.	

NAS 8-32220 **Athens State College** **1011**
Speckle holography

Period	Obligations	
01/24/77-01/23/78	FY77: $5,999	TOTAL: $5,999
Prin Invest	*NASA Tech Officer*	*CASE Category*
Martin, A. M.	MSFC/Finnell, S. E.	13-Physics
	MSFC/Moore, W. W., Jr	

NAS 8-32221 **Athens State College** **1012**
Evaluative study of several photopolymer holographic detector materials

Period	Obligations	
01/17/77-09/17/77	FY77: $14,000	TOTAL: $14,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Workman, G. L.	MSFC/Finnell, S. E.	13-Physics
	MSFC/Moore, W. W., Jr.	

NAS 8-32483 **Athens State College** **1013**
Optical surface damage from reentrant gases on space transportation system

Period	Obligations	
05/16/77-05/15/78	FY77: $16,000	TOTAL: $16,000

Prin Invest	NASA Tech Officer	CASE Category
McNutt, R. C.	MSFC/Shriver, E. L. MSFC/Linton, R. C.	43-Chem Engr

NAS 8-29856 **Auburn University** **1014**
Detection of soil acidity

Period	Obligations	
07/01/73-03/31/77	FY77:	TOTAL: $54,900

Prin Invest	NASA Tech Officer	CASE Category
Hagler, T. B.	MSFC/Downs, S. W., Jr.	51-Biology

NAS 8-30654 **Auburn University** **1015**
Development of Alabama resources information management system

Period	Obligations	
04/23/74-02/28/77	FY77:	TOTAL: $71,592

Prin Invest	NASA Tech Officer	CASE Category
Vachon, R. I. Herring, B. E.	MSFC/Cummings, R. F. MSFC/Messer, C.	22-Computer Sci

NAS 8-31223 **Auburn University** **1016**
Optical data processing study

Period	Obligations	
02/04/75-10/04/76	FY77:	TOTAL: $14,231

Prin Invest	NASA Tech Officer	CASE Category
Pinson, L. J.	MSFC/Keer, J. H. MSFC/Smith, H. F.	45-Elec Engr

NAS 8-31572 **Auburn University** **1017**
Design, processing and test of large scale integrated circuit arrays

Period	Obligations	
12/01/75-03/01/78	FY77:	TOTAL: $41,191

Prin Invest	NASA Tech Officer	CASE Category
Carroll, B. D.	MSFC/Matheney, J. L. MSFC/Gould, J.	45-Elec Engr

NAS 8-32215 **Auburn University** **1018**
Development of Alabama resources information management system

Period	Obligations	
12/20/76-12/20/77	FY77: $20,000	TOTAL: $20,000

Prin Invest	NASA Tech Officer	CASE Category
Vachon, R. I. Herring, B. E.	MSFC/Huffman, J. D. MSFC/Paludan, C. T.	39-Env Sci, NEC

NAS 8-32633 **Auburn University** **1019**
The large scale integrated circuits cost optimizing

Period	Obligations	
09/06/77-09/05/78	FY77: $29,400	TOTAL: $29,400

Prin Invest	NASA Tech Officer	CASE Category
Cook, K. B. Kerns, D. V.	MSFC/Routh, D. E. MSFC/Hollis, B. R.	49-Engr, NEC

NAS 8-32634 **Auburn University** **1020**
The large scale integrated circuits process technology

Period	Obligations	
09/06/77-09/05/78	FY77: $29,400	TOTAL: $29,400

Prin Invest	NASA Tech Officer	CASE Category
Kerns, D. V. Cook, K. B.	MSFC/Routh, D. E. MSFC/Feltner, W. R.	49-Engr, NEC

NCA 2-48701 **Auburn University** **1021**
The integration of theory and experiment

Period	Obligations	
02/21/77-09/30/77	FY77: $5,830	TOTAL: $5,830

Prin Invest	NASA Tech Officer	CASE Category
Vestal, D. M., Jr.	ARC/Chapman, G. T.	46-Mech Engr

NCA 8-120 **Auburn University** **1022**
Solid propellant rocket motor internal ballistic performance variation

Period	Obligations	
10/28/75-06/30/76	FY77:	TOTAL: $24,000

Prin Invest	NASA Tech Officer	CASE Category
Sforzini, R. H.	MSFC/Shackleford, B. W., Jr.	43-Chem Engr

NCA 8-124 **Auburn University** **1023**
Research and study of solid propellant rocket motor internal ballistic performance variation

Period	Obligations	
05/05/76-09/29/76	FY77	TOTAL: $8,000

Prin Invest	NASA Tech Officer	CASE Category
Sforzini, R. H.	MSFC/Shackleford, B. W., Jr.	43-Chem Engr

NCA 8-125 **Auburn University** **1024**
Research and study of solid propellant rocket motor internal ballistic performance variation

Period	Obligations	
11/19/76-11/18/77	FY77: $36,000	TOTAL: $36,000

Prin Invest	NASA Tech Officer	CASE Category
Sforzini, R. H.	MSFC/Shackelford, B. W., Jr.	43-Chem Engr

NCA 8-128 **Auburn University** **1025**
Evaluation of induction motors with electronic controls

Period	Obligations	
08/03/77-01/02/77	FY77: $7,500	TOTAL: $7,500

Prin Invest	NASA Tech Officer	CASE Category
Russell, D. Lowrey, W.	MSFC/Nola, F. J.	43-Chem Engr

ALABAMA (Continued)

NGT 01-003-044 **Auburn University** **1026**
Summer fellowship programs in engineering systems design

Period	Obligations	
12/16/69-03/31/76	FY77:	TOTAL: $719,236
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vachon, R. I.	HQ-P/Carter, C. H.	49-Engr, NEC

NSG 3109 **Auburn University** **1027**
Techniques for determining stresses in rotating turbine or compressor blades

Period	Obligations	
09/01/76-12/30/77	FY77:	TOTAL: $38,842
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ranson, W. F. Swinson, W. F.	LERC/Decker, A. J.	49-Engr, NEC

NSG 8047 **Auburn University** **1028**
Grain quality inspection system: Phase I feasibility evaluation

Period	Obligations	
01/24/77-01/23/78	FY77: $26,000	TOTAL: $26,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Flood, C. A., Jr. Hamilton, H. E. Pinson, L. J	MSFC/Daniel, C. C.	49-Engr, NEC

NGR 01-007-009 **Talladega College** **1029**
Far infrared lattice properties of gallium arsenide

Period	Obligations	
01/01/74-03/14/78	FY77:	TOTAL: $80,450
Prin Invest	*NASA Tech Officer*	*CASE Category*
Breecher, J.	MSFC/Dalins, I.	13-Physics

NSG 2217 **Talladega College** **1030**
Experimental research on the thermodynamic properties of sulfuric acid

Period	Obligations	
05/01/77-04/30/78	FY77: $24,973	TOTAL: $24,973
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morrison, R. A.	ARC/Whitten, R. C. ARC/Black, D. C.	13-Physics

NAS 9-13844 **Tuskegee Institute** **1031**
Analytical investigation of the heat-pipe radiator as a spacecraft heat rejection system

Period	Obligations	
01/01/74-12/31/79	FY77: $10,000	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sellers, J. P., Jr	JSC/French, B. O	46-Mech Engr

NCA 2-810701 **Tuskegee Institute** **1032**
Scanning and transmission electron microscopy and radiation studies on isolated lampbrush chromosomes; morphometrics of cellular damage in mice receiving whole body irradiation

Period	Obligations	
05/15/77-07/15/78	FY77: $9,020	TOTAL: $9,020
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sapp, W. J	ARC/Philpott, D. E.	51-Biology

NGT 01-005-750 **Tuskegee Institute** **1033**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/75-05/31/78	FY77: $14,000	TOTAL: $42,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dybczak, Z. W.	HQ-P/Pohly, J. G. HQ-U/Jenkins, H. G.	49-Engr, NEC

NSG 3154 **Tuskegee Institute** **1034**
Evaporation behavior of superalloys

Period	Obligations	
08/01/77-08/03/78	FY77: $40,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ramirez, R. P. Jeelani, S.	LERC/Titran, R. H. LERC/Klopp, W. D.	47-Materials Engr

NSG 8003 **Tuskegee Institute** **1035**
Investigation of effects of corona and electrical discharges on degradation of insulation materials

Period	Obligations	
02/01/74-08/01/76	FY77	TOTAL: $53,886
Prin Invest	*NASA Tech Officer*	*CASE Category*
Doreswamy, C. V.	MSFC/Crowell, C. S. MSFC/Kent, M. I	45-Elec Engr

NSG 8038 **Tuskegee Institute** **1036**
Investigation of electrical breakdown characteristics and stability of insulating materials used on solar cells (photovoltaic converters)

Period	Obligations	
08/01/76-08/31/78	FY77: $23,349	TOTAL: $49,042
Prin Invest	*NASA Tech Officer*	*CASE Category*
Doreswamy, C. V.	MSFC/Young, L. E. MSFC/Kent, M. I	45-Elec Engr

NSG 8054 **Tuskegee Institute** **1037**
An investigation of absorber and radiators for solar power systems

Period	Obligations	
09/01/77-08/31/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sellers, J. C., Jr.	MSFC/Brantley, L. W. MSFC/Kent, M. I	46-Mech Engr

NGR 01-010-001 **University of Alabama - Birmingham** **1038**
Model for origin and coevolution of genetic code and the process of protein synthesis

Period	Obligations	
05/09/73-05/31/78	FY77: $51,750	TOTAL: $174,946
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lacey, J. C., Jr	HQ-SB/Young, R. S	12-Chemistry

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NAS 8-24953 **University of Alabama - Huntsville** **1039**
Study of specific light output of CSI crystals

Period	Obligations	
06/26/69-12/31/76	FY77:	TOTAL: $373,852
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Gregory, J. C.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Fishman, G. J.	

NAS 8-28097 **University of Alabama - Huntsville** **1040**
Triggering mechanisms for solar flares

Period	Obligations	
12/06/71-05/31/78	FY77: $80,000	TOTAL: $460,000
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Wu, S. T.	MSFC/Tandberghanssen, E.	13-Physics
	MSFC/Watkins, J. R.	

NAS 8-28248 **University of Alabama - Huntsville** **1041**
Environmental dynamics at orbital altitudes

Period	Obligations	
01/24/72-06/30/76	FY77:	TOTAL: $104,332
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Hermann, R.	MSFC/Swenson, G. R.	42-Astro Engr
	MSFC/Smith, R. E.	

NAS 8-28304 **University of Alabama - Huntsville** **1042**
Skylab experiment on growth of spherical crystals

Period	Obligations	
09/19/72-06/30/76	FY77:	TOTAL: $147,547
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Walter, H. U.	MSFC/Adams, W. R.	19-Phys Sci, NEC
	MSFC/Bannister, T. C.	

NAS 8-29316 **University of Alabama - Huntsville** **1043**
Working model of the London moment readout

Period	Obligations	
10/06/72-02/22/78	FY77: $121,025	TOTAL: $431,376
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Hendricks, J. B.	MSFC/Decher, R.	99-Multi-Discip
Karr, G. R.	MSFC/Urban, E. W.	

NAS 8-30247 **University of Alabama - Huntsville** **1044**
Review, study, and evaluation of possible flight experiments relating to cloud physics experiments in space

Period	Obligations	
11/01/73-10/31/76	FY77:	TOTAL: $100,000
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Hung, R. J.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Vaughan, W. W.	

NAS 8-30563 **University of Alabama - Huntsville** **1045**
Study of magnetospheric and laboratory plasma physics experiment

Period	Obligations	
09/01/74-07/31/78	FY77: $55,000	TOTAL: $149,096
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Rush, J. E.	MSFC/Chappell, C. R.	13-Physics

NAS 8-31170 **University of Alabama - Huntsville** **1046**
Study of efficient low power diffractometer designs

Period	Obligations	
01/15/75-04/30/78	FY77: $20,000	TOTAL: $68,391
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Gregory, J. C.	MSFC/Parnell, T. A.	13-Physics
	MSFC/Fishman, G. J.	

NAS 8-31171 **University of Alabama - Huntsville** **1047**
Study of internal wave motions on the neutral atmosphere

Period	Obligations	
02/14/75-12/31/77	FY77: $20,000	TOTAL: $40,000
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Hung, R. J.	MSFC/West, G. S., Jr.	39-Env Sci, NEC
	MSFC/Smith, R. E.	

NAS 8-31194 **University of Alabama - Huntsville** **1048**
Earth and ocean modeling

Period	Obligations	
12/01/74-01/16/77	FY77	TOTAL: $90,919
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Knezovich, F. M.	MSFC/Teuber, D. L.	13-Physics
	MSFC/Lundquist, C. A.	

NAS 8-31293 **University of Alabama - Huntsville** **1049**
Solar heating and cooling technical data and systems analysis

Period	Obligations	
11/07/74-11/01/76	FY77: $269,077	TOTAL: $481,521
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Christiensen, D.	MSFC/Bowden, D. R.	13-Physics

NAS 8-31321 **University of Alabama - Huntsville** **1050**
Cloud physics laboratory project science and applications working group

Period	Obligations	
12/20/74-11/30/77	FY77: $9,000	TOTAL: $89,000
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Hung, R. J.	MSFC/Smith, R. E.	31-Atmos Sci
	MSFC/Vaughan, O. H.	

NAS 8-31345 **University of Alabama - Huntsville** **1051**
Water resources and stream contamination study

Period	Obligations	
04/01/75-10/01/77	FY77:	TOTAL: $15,000
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Doyle, L.	MSFC/Bensko, J.	32-Geological Sci

NAS 8-31729 **University of Alabama - Huntsville** **1052**
Numerical simulation of warm fogs

Period	Obligations	
11/05/75-11/30/77	FY77: $4,000	TOTAL: $24,000
Prin Invest	**NASA Tech Officer**	**CASE Categor**
Hung, R. J.	MSFC/Vaughn, O. H.	13-Physics
	MSFC/Anderson, B. J	

NAS 8-31895 **University of Alabama - Huntsville** **1053**
Investigations in cosmic ray and gamma ray astronomy and nuclear instruments

Period 03/19/76-08/08/78 *Obligations* FY77: $51,000 TOTAL: $70,000
Prin Invest Gregory, J. C.
NASA Tech Officer MSFC/Fishman, G. J.; MSFC/Parnell, T. A.
CASE Category 13 Physics

NAS 8-32225 **University of Alabama - Huntsville** **1054**
Shuttle comet research

Period 09/30/76-01/29/77 *Obligations* FY77: $4,254 TOTAL: $8,254
Prin Invest Stuhlinger, E.
NASA Tech Officer MSFC/Clifton, K. S.
CASE Category 11-Astronomy

NAS 8-32398 **University of Alabama - Huntsville** **1055**
Measurements of materials properties for solar cells

Period 02/07/77-11/06/77 *Obligations* FY77: $26,014 TOTAL: $26,014
Prin Invest Castle, J. G.
NASA Tech Officer MSFC/Whitaker, A. F.; MSFC/Peacock, C.
CASE Category 13-Physics

NAS 8-32608 **University of Alabama - Huntsville** **1056**
Research study: Data management

Period 07/15/77-03/14/78 *Obligations* FY77: $23,885 TOTAL: $23,885
Prin Invest Carter, E. A.
NASA Tech Officer MSFC/Carey, W. T., Jr.; MSFC/Hudson, K.
CASE Category 45-Elec Engr

NGT 01-008-021 **University of Alabama - Huntsville** **1057**
Summer faculty fellowship program

Period 01/01/76-03/31/78 *Obligations* FY77: $98,065 TOTAL: $202,590
Prin Invest Head, R. R.
NASA Tech Officer HQ-P/Carter, C. H.
CASE Category 49-Engr, NEC

NSG 2058 **University of Alabama - Huntsville** **1058**
Development of an isolation research model and paradigm

Period 12/15/74-01/31/79 *Obligations* FY77: $64,169 TOTAL: $154,370
Prin Invest Rogers, J. G.; Sullins, W. R., Jr.
NASA Tech Officer ARC/Tanner, T. A., Jr.
CASE Category 69-Psych, NEC

NAS 8-29100 **University of Alabama - Tuscaloosa** **1059**
Water resources planning for rivers draining into Mobile Bay

Period 07/01/73-12/31/76 *Obligations* FY77: TOTAL: $64,980
Prin Invest April, G. C.; Hill, D. O.
NASA Tech Officer MSFC/Morton, R. R.; MSFC/Paludan, C. T.
CASE Category 49-Engr, NEC

NAS 8-29937 **University of Alabama - Tuscaloosa** **1060**
Use of remote sensing techniques for geological hazard surveys in vegetated urban regions

Period 06/08/73-12/31/76 *Obligations* FY77: TOTAL: $49,996
Prin Invest Stow, S. H.
NASA Tech Officer MSFC/Bensko, J.
CASE Category 32-Geological Sci

NAS 8-30479 **University of Alabama - Tuscaloosa** **1061**
Evaluation of composite mobile holographic nondestructive test system

Period 12/28/73-05/27/76 *Obligations* FY77: TOTAL: $31,000
Prin Invest Liu, H. K.
NASA Tech Officer MSFC/Moore, W. W., Jr.; MSFC/Kurtz, R. L.
CASE Category 13-Physics

NAS 8-30624 **University of Alabama - Tuscaloosa** **1062**
Plume induced flow separation in unsteady aerodynamics

Period 05/13/74-08/15/76 *Obligations* FY77: TOTAL: $50,000
Prin Invest Doughty, J. O.
NASA Tech Officer MSFC/Schutzenhofer, L. A.; MSFC/Jones, J. H.
CASE Category 46-Mech Engr

NAS 8-31979 **University of Alabama - Tuscaloosa** **1063**
Remote sensing workshop

Period 06/01/76-07/15/77 *Obligations* FY77: TOTAL: $10,150
Prin Invest Hughes, T.
NASA Tech Officer MSFC/Bensko, J.; MSFC/Paludan, C. T.
CASE Category 13-Physics

NAS 8-32386 **University of Alabama - Tuscaloosa** **1064**
Composite mobile holographic non-destructive test system analysis

Period 01/10/77-01/09/78 *Obligations* FY77: $25,000 TOTAL: $25,000
Prin Invest Liu, H. K.
NASA Tech Officer MSFC/Finnell, S. E.; MSFC/Moore, W. W., Jr.
CASE Category 13-Physics

NAS 8-32481 **University of Alabama - Tuscaloosa** **1065**
Development of surfaces optically suitable for flat solar panels

Period 05/16/77-04/15/78 *Obligations* FY77: $28,725 TOTAL: $28,725
Prin Invest Desmedt, D.
NASA Tech Officer MSFC/Linton, R. C.; MSFC/Miller, E. R.
CASE Category 12-Chemistry

NGT 01-002-080 **University of Alabama - Tuscaloosa** **1066**
Summer faculty fellowship program

Period 01/14/71-12/31/76 *Obligations* FY77: TOTAL: $313,359
Prin Invest Barfield, B. F.
NASA Tech Officer HQ-P/Carter, C. H.
CASE Category 49-Engr, NEC

ALABAMA (Continued)

NGT 01-002-095 **University of Alabama - Tuscaloosa** **1067**
Summer faculty fellowship program in engineering systems design

Period | *Obligations*
01/01/77-03/31/78 | FY77: $106,022 | TOTAL: $106,022

Prin Invest | *NASA Tech Officer* | *CASE Category*
Lueg, R. E. | HQ-P/Carter, C. H. | 49-Engr, NEC

ALASKA

NAS 5-20959 **University of Alaska - Fairbanks** **1068**
Analysis of ERTS data follow-on investigation

Period | *Obligations*
02/24/75-08/24/77 | FY77: | TOTAL: $28,337

Prin Invest | *NASA Tech Officer* | *CASE Category*
Stringer, W. | GSFC/Oseroff, H. | 33-Oceanography

NGL 02-001-092 **University of Alaska - Fairbanks** **1069**
Application of remote sensing data to surveys of the Alaskan environment

Period | *Obligations*
07/26/72-09/30/79 | FY77: $200,000 | TOTAL: $675,000

Prin Invest | *NASA Tech Officer* | *CASE Category*
Miller, J. M. | HQ-P/Vitale, J. A | 39-Env Sci, NEC

NGR 02-001-087 **University of Alaska - Fairbanks** **1070**
Measurement of electric fields in a rayed auroral arc

Period | *Obligations*
03/02/72-01/31/76 | FY77: | TOTAL: $425,417

Prin Invest | *NASA Tech Officer* | *CASE Category*
Davis, T. N. | HQ-ST/Schmerling, E. R. | 13-Physics
| HQ-SA/Logan, W.

NSG 6014 **University of Alaska - Fairbanks** **1071**
Active experiments using rocket-borne shaped charge barium releases

Period | *Obligations*
01/01/76-12/31/77 | FY77: $119,361 | TOTAL: $289,361

Prin Invest | *NASA Tech Officer* | *CASE Category*
Davis, T. N. | WFC/Ballance, C. W., Jr. |
| WFC/Gray, J. W. | 19-Phys Sci, NEC

NSG 7051 **University of Alaska - Fairbanks** **1072**
Study of the relationship between the ring current and magnetosphere substorms

Period | *Obligations*
01/01/74-12/31/75 | FY77: | TOTAL: $30,000

Prin Invest | *NASA Tech Officer* | *CASE Category*
Akasofu, S. I. | HQ-ST/Schmerling, E. R. | 13-Physics

NSG 7281 **University of Alaska - Fairbanks** **1073**
A study of the relationship of the ring current and magnetospheric substorms

Period | *Obligations*
10/01/76-09/30/77 | FY77: $25,000 | TOTAL: $25,000

Prin Invest | *NASA Tech Officer* | *CASE Category*
Akasofu, S. I. | HQ-ST/Taylor, W. W. | 39-Env Sci, NEC
| HQ-ST/Schmerling, E. R.

ARIZONA

NAS 8-32230 **Arizona State University** **1074**
Marshall mated element system translator

Period | *Obligations*
12/15/76-05/15/78 | FY77: $100,000 | TOTAL: $100,000

Prin Invest | *NASA Tech Officer* | *CASE Category*
Woodfill, M. C. | MSFC/Lee, G. | 21-Mathematics
| MSFC/Belton, P. D.

NAS 8-32357 **Arizona State University** **1075**
Building and obstacle wakes

Period | *Obligations*
02/11/77-01/14/78 | FY77: $30,000 | TOTAL: $30,000

Prin Invest | *NASA Tech Officer* | *CASE Category*
Logan, E., Jr | MSFC/Camp, D. | 31-Atmos Sci
| MSFC/Alexander, M.

NCA 2-35702 **Arizona State University** **1076**
Investigation of the synthesis of optically active polymers

Period | *Obligations*
01/01/77-12/31/78 | FY77: $8,000 | TOTAL: $8,000

Prin Invest | *NASA Tech Officer* | *CASE Category*
Yuen, G. U. | ARC/Pollack, G. E. | 12-Chemistry
Munk, S.

NCA 2-35703 **Arizona State University** **1077**
Analysis of sand-size particles abraded under Martian conditions

Period | *Obligations*
07/01/77-06/30/78 | FY77: $12,696 | TOTAL: $12,696

Prin Invest | *NASA Tech Officer* | *CASE Category*
Krinsley, D. | ARC/Pollack, J. B. | 32-Geological Sci
Greeley, R.

NGL 03-001-001 **Arizona State University** **1078**
Development of improved procedures for sampling, characterizing & classifying meteorite specimens

Period | *Obligations*
04/16/63-02/28/80 | FY77: $24,100 | TOTAL: $330,423

Prin Invest | *NASA Tech Officer* | *CASE Category*
Moore, C. B. | HQ-SL/French, B. M. | 32-Geological Sci
| HQ-SI/Quaide, W. L.

ARIZONA (Continued)

NSG 3075 **Arizona State University** **1079**
Study of multiple jet array impingement heat transfer characteristics

Period	Obligations	
09/01/75-05/31/78	FY77: $73,000	TOTAL: $148,000

Prin Invest	NASA Tech Officer	CASE Category
Metzger, D. E Florschuetz, L. W.	LERC/Hippensteele, S. A.	41-Aero Engr

NSG 7019 **Arizona State University** **1080**
Work function evaluation of iron-nickel alloys and other metals for low temperature thermionic energy converters

Period	Obligations	
01/01/74-12/31/77	FY77: $13,333	TOTAL: $68,876

Prin Invest	NASA Tech Officer	CASE Category
Jacobson, D. L.	LERC/Morris, J. F.	13-Physics

NSG 7040 **Arizona State University** **1081**
A data synthesis proposal to explain the chemical composition of the moon

Period	Obligations	
04/01/74-02/28/78	FY77: $45,458	TOTAL: $148,169

Prin Invest	NASA Tech Officer	CASE Category
Lattmer, J. W	HQ-SL/French, B. M HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7217 **Arizona State University** **1082**
Cobalt as an analog for ferrous iron

Period	Obligations	
03/01/76-02/28/77	FY77:	TOTAL: $17,406

Prin Invest	NASA Tech Officer	CASE Category
Holloway, J. R.	HQ-SL/Williams, R. J. HQ-SL/Flinn, E. A	32-Geological Sci

NSG 7255 **Arizona State University** **1083**
The nature and origin of organic compounds in carbonaceous meteorites

Period	Obligations	
06/14/76-01/31/78	FY77: $45,000	TOTAL: $57,375

Prin Invest	NASA Tech Officer	CASE Category
Cronin, J. R. Yuen, G. U.	HQ-SB/Young, R. S.	32-Geological Sci

NAS 1-14332 **University of Arizona** **1084**
Stratospheric aerosol measurement experiment

Period	Obligations	
03/19/76-10/31/78	FY77:	TOTAL: $32,000

Prin Invest	NASA Tech Officer	CASE Category
Herman, B. M.	LARC/McCormick, M. P. LARC/McMaster, L. R.	31-Atmos Sci

NAS 1-14928 **University of Arizona** **1085**
Stratospheric aerosol and gas experiment

Period	Obligations	
07/21/77-09/30/79	FY77: $15,000	TOTAL: $15,000

Prin Invest	NASA Tech Officer	CASE Category
Herman, B. M.	LARC/McMaster, L. R. LARC/McCormick, M. P.	31-Atmos Sci

NAS 2-6265 **University of Arizona** **1086**
IPP software & display system

Period	Obligations	
11/01/70-01/31/78	FY77: $151,662	TOTAL: $1,441,569

Prin Invest	NASA Tech Officer	CASE Category
Gehrels, A. M.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy

NAS 2-8818 **University of Arizona** **1087**
Pioneer/Venus design and development of solar flux radiometer

Period	Obligations	
06/21/75-08/31/78	FY77: $140,000	TOTAL: $490,000

Prin Invest	NASA Tech Officer	CASE Category
Tomasko, M. G Wolfe, W.	ARC/Hall, C. F ARC/Yee, L.	31-Atmos Sci

NAS 2-9486 **University of Arizona** **1088**
Pioneer/Venus data analysis of the solar flux radiometer experiment

Period	Obligations	
05/27/77-09/30/78	FY77: $60,000	TOTAL: $60,000

Prin Invest	NASA Tech Officer	CASE Category
Tomasko, M. G.	ARC/Hall, C. F	11-Astronomy

NAS 5-22599 **University of Arizona** **1089**
Cryogenics study

Period	Obligations	
02/09/76-12/09/76	FY77:	TOTAL: $23,053

Prin Invest	NASA Tech Officer	CASE Category
Low, F. J.	GSFC/Hymowitz, E. W.	11-Astronomy

NAS 5-23176 **University of Arizona** **1090**
Phase C/D for HECRE-HEAO-A

Period	Obligations	
12/01/72-07/01/76	FY77:	TOTAL: $29,770

Prin Invest	NASA Tech Officer	CASE Category
Bowen, T Delise, D. A.	GSFC/Browning, R. K.	11-Astronomy

NAS 5-24308 **University of Arizona** **1091**
Study of suitability of starlab for solar system studies

Period	Obligations	
09/27/77-09/26/78	FY77: $16,177	TOTAL: $16,177

Prin Invest	NASA Tech Officer	CASE Category
Smith, B. A.	GSFC/Wilson, L. GSFC/Stecher, T. P.	11-Astronomy

NAS 8-29566 **University of Arizona** **1092**
Role of gravity in preparative electrophoresis

Period	Obligations	
02/01/73-03/31/78	FY77: $90,000	TOTAL: $374,884

Prin Invest	NASA Tech Officer	CASE Category
Bier, M.	MSFC/Allen, R. E MSFC/Snyder, R. S.	13-Physics

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NAS 8-31192 **University of Arizona** **1093**
Maintenance and operation of the 60" NASA telescope at Mt Lemmon

Period	Obligations	
10/01/74-12/03/77	FY77: $78,215	TOTAL: $191,892
Prin Invest	NASA Tech Officer	CASE Category
Sonett, C. P	MSFC/Miller, E. R. MSFC/Lundquist, C. A.	11-Astronomy

NAS 8-31196 **University of Arizona** **1094**
Replacement of optics for the NASA 1.5 meter telescope

Period	Obligations	
10/18/74-01/31/77	FY77: $7,523	TOTAL: $72,963
Prin Invest	NASA Tech Officer	CASE Category
Sonett, C. P	MSFC/Miller, E. R. MSFC/Lundquist, C. A.	11-Astronomy

NAS 8-31537 **University of Arizona** **1095**
Engineering evaluation of rocket electrophoresis

Period	Obligations	
06/17/75-12/17/75	FY77:	TOTAL: $30,000
Prin Invest	NASA Tech Officer	CASE Category
Bier, M.	MSFC/Allen, R. E. MSFC/Harwell, R. J.	47-Materials Engr

NAS 8-31948 **University of Arizona** **1096**
Automated analytical electrophoresis apparatus

Period	Obligations	
05/17/76-02/15/78	FY77: $85,000	TOTAL: $165,000
Prin Invest	NASA Tech Officer	CASE Category
Bartels, P. H Bier, M	MSFC/Snyder, R. S MSFC/Nerren, B. H.	51-Biology

NAS 8-32127 **University of Arizona** **1097**
Study of stray light suppression for the large space telescope

Period	Obligations	
08/17/76-08/16/78	FY77:	TOTAL: $40,000
Prin Invest	NASA Tech Officer	CASE Category
Slater, P. N	MSFC/Griner, D. B MSFC/Johnson, D. D	11-Astronomy

NAS 9-14692 **University of Arizona** **1098**
Automated computerized pattern recognition in cytology

Period	Obligations	
06/01/75-12/31/77	FY77: $15,000	TOTAL: $50,439
Prin Invest	NASA Tech Officer	CASE Category
Bartels, P. H	JSC/Kimsey, S. L.	59-Life Sci, NEC

NASW-2944 **University of Arizona** **1099**
Establish and operate a space imagery center

Period	Obligations	
06/15/76-09/15/77	FY77: $1,326	TOTAL: $26,326
Prin Invest	NASA Tech Officer	CASE Category
Strom, R. G.	HQ-SL/Dwornik, S. E.	11-Astronomy

NAS10-8518 **University of Arizona** **1100**
Thunderstorm electrical field changes and associated meteorological conditions at KSC

Period	Obligations	
02/12/74-01/15/78	FY77: $50,600	TOTAL: $116,600
Prin Invest	NASA Tech Officer	CASE Category
Krider, E. P.	KSC/Jafferis, W.	31-Atmos Sci

NCA 2-40701 **University of Arizona** **1101**
Evaluation of new generation of Fourier transform spectrometers through engineering flight tests on the Kuiper airborne observatory

Period	Obligations	
05/01/77-12/31/77	FY77: $8,250	TOTAL: $8,250
Prin Invest	NASA Tech Officer	CASE Category
Larson, H. P.	ARC/Gillespie, C. M., Jr.	11-Astronomy

NCA 5-19 **University of Arizona** **1102**
Observation of comets, atmospheric extinction and image intensifier research

Period	Obligations	
08/19/76-06/01/77	FY77: $2,000	TOTAL: $2,000
Prin Invest	NASA Tech Officer	CASE Category
Kassander, R. A.	GSFC/Dankelman, L.	31-Atmos Sci

NCA 5-62 **University of Arizona** **1103**
Observations of comets, atmospheric extinction and image intensifier research and application

Period	Obligations	
04/27/76-06/01/77	FY77:	TOTAL: $6,000
Prin Invest	NASA Tech Officer	CASE Category
Sonett, S. P.	GSFC/Maran, S. P.	11-Astronomy

NCA 5-75 **University of Arizona** **1104**
Infrared studies of various ices

Period	Obligations	
04/29/77-09/30/77	FY77: $5,000	TOTAL: $5,000
Prin Invest	NASA Tech Officer	CASE Category
Fink, U. W.	GSFC/Pearl, J.	31-Atmos Sci

NCA 5-76 **University of Arizona** **1105**
Observation of comets and atmospheric extinction

Period	Obligations	
04/12/77-03/01/78	FY77: $6,000	TOTAL: $6,000
Prin Invest	NASA Tech Officer	CASE Category
Martineck, S.	GSFC/Dunkelman, L.	31-Atmos Sci

NGL 03-002-002 **University of Arizona** **1106**
Planetary, spectroscopic, selenodetic & physical studies of lunar surface

Period	Obligations	
08/12/61-05/30/80	FY77: $73,848	TOTAL: $2,663,767
Prin Invest	NASA Tech Officer	CASE Category
Sonett, C. P.	HQ-SL/Brunk, W. E.	11-Astronomy

ARIZONA (Continued)

NGL 03-002-017 **University of Arizona** **1107**
Operation of MV van de Graaff accelerator for basic experiments in atomic optical spectroscopy

Period	Obligations	
05/21/64-10/31/77	FY77:	TOTAL: $1,005,061
Prin Invest	**NASA Tech Officer**	**CASE Category**
Bashkin, S.	HQ-SA/Roman, N. G.	11-Astronomy

NGL 03-002-019 **University of Arizona** **1108**
High resolution electron microscopic techniques to study biological material

Period	Obligations	
06/07/63-08/31/79	FY77: $30,000	TOTAL: $471,055
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hoenig, S. A.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. F.	31-Atmos Sci

NGL 03-002-032 **University of Arizona** **1109**
Large optical telescope systems suitable for use with manned space systems

Period	Obligations	
08/05/64-09/30/76	FY77	TOTAL: $746,232
Prin Invest	**NASA Tech Officer**	**CASE Category**
Tifft, W. G.	HQ-SA/Roman, N. G HQ-SA/Boggess, N. W	11-Astronomy

NGL 03-002-081 **University of Arizona** **1110**
Photometry and polarimetry of minor planets

Period	Obligations	
03/14/66-09/30/78	FY77 $69,964	TOTAL: $429,236
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gehrels, T.	HQ-SL/Brunk, W. F. HQ-SL/Quaide, W. L.	11-Astronomy

NGL 03-002-122 **University of Arizona** **1111**
Astrometric and astrophysical investigation of comets, minor planets, and satellites

Period	Obligations	
02/22/67-04/30/78	FY77	TOTAL: $214,295
Prin Invest	**NASA Tech Officer**	**CASE Category**
Roemer, E.	HQ-SL/Brunk, W. F. HQ-SL/Fellows, R. F.	11-Astronomy

NGL 03-002-191 **University of Arizona** **1112**
Lunar surface and planetology study

Period	Obligations	
05/16/69-03/31/78	FY77 $47,246	TOTAL: $530,283
Prin Invest	**NASA Tech Officer**	**CASE Category**
Strom, R. G.	HQ-SL/Williams, R. J. HQ-SL/Flinn, E. A.	32-Geological Sci

NGL 03-002-313 **University of Arizona** **1113**
Remote sensing applications for state & local government

Period	Obligations	
03/07/72-02/28/80	FY77: $100,000	TOTAL: $600,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Johnson, J. D.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NGR 03-002-107 **University of Arizona** **1114**
Basic research in astrophysics and space science

Period	Obligations	
09/01/67-08/31/78	FY77: $111,474	TOTAL: $579,537
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hsieh, K. C.	HQ-ST/King, J. H. HQ-ST/Schmerling, E. R.	13-Physics

NGR 03-002-171 **University of Arizona** **1115**
Analysis of carbonaceous meteorites

Period	Obligations	
10/26/68-09/30/77	FY77: $45,000	TOTAL: $482,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Nagy, B. Nagy, L. A. Urey, H. C.	HQ-SB/Young, R. S.	32-Geological Sci

NGR 03-002-219 **University of Arizona** **1116**
Photopolarimetry of Mercury, Mars, and satellites

Period	Obligations	
02/13/70-10/31/77	FY77: $35,000	TOTAL: $279,367
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gehrels, A. M.	HQ-SL/Brunk, W. F. HQ-SL/Fellows, R. F.	11-Astronomy

NGR 03-002-269 **University of Arizona** **1117**
Operation of a 30 cm flying infrared telescope

Period	Obligations	
05/04/71-05/31/78	FY77: $69,000	TOTAL: $427,169
Prin Invest	**NASA Tech Officer**	**CASE Category**
Low, F. J.	HQ-SA/Boggess, N. W. HQ-SA/Roman, N. G.	11-Astronomy

NGR 03-002-332 **University of Arizona** **1118**
Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fourier interferometer

Period	Obligations	
03/05/73-09/30/78	FY77 $110,000	TOTAL: $306,478
Prin Invest	**NASA Tech Officer**	**CASE Category**
Harper, H. P.	ARC/Gillespie, C. M., Jr. ARC/Cameron, R. M.	11-Astronomy

NGR 03-002-370 **University of Arizona** **1119**
An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism

Period	Obligations	
10/01/73-12/31/77	FY77 $34,415	TOTAL: $155,397
Prin Invest	**NASA Tech Officer**	**CASE Category**
Sonett, C. P.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci

ARIZONA (Continued)

NGR 03-002-371 **University of Arizona** **1120**
Far infrared observations of galactic and extra-galactic sources of radiation

Period	Obligations	
09/01/73-11/30/77	FY77: $50,000	TOTAL: $200,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hoffman, W. F.	HQ-SA/Boggess, N. W HQ-SA/Roman, N. G.	11-Astronomy

NGR 03-002-388 **University of Arizona** **1121**
Lunar sample analysis

Period	Obligations	
02/01/74-01/31/78	FY77: $71,000	TOTAL: $184,700
Prin Invest	**NASA Tech Officer**	**CASE Category**
Drake, M. J.	JSC/Harris, J. W.	12-Chemistry

NGR 03-002-390 **University of Arizona** **1122**
Mapping structure of galactic center

Period	Obligations	
10/01/73-08/31/78	FY77: $100,853	TOTAL: $194,733
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hoffman, W. F.	ARC/Gillespie, C. M., Jr.	11-Astronomy
Harvey, P.	ARC/Cameron, R. M.	

NSG 2112 **University of Arizona** **1123**
Inviscid transonic flow computations

Period	Obligations	
11/01/75-10/31/78	FY77: $50,850	TOTAL: $100,823
Prin Invest	**NASA Tech Officer**	**CASE Category**
Seebass, A. R.	ARC/Ballhaus, W. F.	41-Aero Engr

NSG 2205 **University of Arizona** **1124**
Construction of a radial velocity meter for determining percentage of binaries among solar-type stars

Period	Obligations	
01/01/77-12/31/77	FY77: $15,000	TOTAL: $15,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Serkowski, K. M.	ARC/Billingham, J.	11-Astronomy

NSG 5022 **University of Arizona** **1125**
Investigation of the basic foundation of masers and lasers

Period	Obligations	
09/01/74-03/15/78	FY77: $10,000	TOTAL: $70,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Lamb, W. E., Jr.	GSFC/McAvoy, N. GSFC/McElroy, J. H.	13-Physics

NSG 5023 **University of Arizona** **1126**
Lightning detection study

Period	Obligations	
09/01/74-11/30/77	FY77: $10,000	TOTAL: $40,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Krider, E. P.	GSFC/LeVine, D. M.	31-Atmos Sci

NSG 5043 **University of Arizona** **1127**
Observational and theoretical studies of the atmosphere of Venus

Period	Obligations	
01/01/75-12/31/76	FY77:	TOTAL: $31,724
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gehrels, A. M.	GSFC/Hansen, J. E. GSFC/Thaddeus, P.	11-Astronomy

NSG 7011 **University of Arizona** **1128**
Radiation history of meteorites

Period	Obligations	
03/01/74-02/28/78	FY77: $45,995	TOTAL: $127,694
Prin Invest	**NASA Tech Officer**	**CASE Category**
Wilkening, L. L.	HQ-SL/French, B. M. HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7020 **University of Arizona** **1129**
Investigation of lunar induced and permanent magnetism in the lunar data analysis and synthesis program

Period	Obligations	
03/01/74-01/31/78	FY77: $112,510	TOTAL: $364,364
Prin Invest	**NASA Tech Officer**	**CASE Category**
Sonett, C. P.	HQ-SL/Goldstein, B. E.	
Skerchen, W. I.	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7024 **University of Arizona** **1130**
Study of the earth's magnetosphere and solar wind

Period	Obligations	
02/01/74-10/31/77	FY77: $40,000	TOTAL: $185,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Sonett, C. P.	HQ-ST/Schmerling, E. R. HQ-ST/Cauffman, D. P.	13-Physics

NSG 7045 **University of Arizona** **1131**
Interiors of the giant planets

Period	Obligations	
05/22/74-03/31/78	FY77: $33,000	TOTAL: $123,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hubbard, W. B.	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy

NSG 7070 **University of Arizona** **1132**
Planetary spectroscopy

Period	Obligations	
06/01/74-05/31/80	FY77: $98,081	TOTAL: $398,132
Prin Invest	**NASA Tech Officer**	**CASE Category**
Fink, U. W.	HQ-SL/Brunk, W. E. HQ-SL/Quaide, W. L.	11-Astronomy

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NSG 7101 **University of Arizona** **1133**
Study structure of astrophysical plasma and turbulent fluctuations

Period	Obligations	
11/18/74-08/31/78	FY77: $87,866	TOTAL: $167,866
Prin Invest	**NASA Tech Officer**	**CASE Category**
Jokipii, J.	HQ-SA/Opp, A G.	11-Astronomy

NSG 7114 **University of Arizona** **1134**
Infrared observations of the planets

Period	Obligations	
02/20/75-05/31/78	FY77.	TOTAL: $46,597
Prin Invest	**NASA Tech Officer**	**CASE Category**
Rieke, G H.	HQ-SL/Brunk, W. E.	11-Astronomy

NSG 7142 **University of Arizona** **1135**
Evaluation of a large format image tube film transport system

Period	Obligations	
06/01/75-05/31/77	FY77:	TOTAL: $43,750
Prin Invest	**NASA Tech Officer**	**CASE Category**
Tifft, W. G.	HQ-SA/Roman, N G.	45-Elec Engr

NSG 7146 **University of Arizona** **1136**
Geologic investigation of Mercury from Mariner 10 television data

Period	Obligations	
07/01/75-10/31/77	FY77: $70,453	TOTAL: $110,653
Prin Invest	**NASA Tech Officer**	**CASE Category**
Strom, R. G	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R	

NSG 7168 **University of Arizona** **1137**
Studies in the production of astrophysical magnetic field

Period	Obligations	
09/01/75-09/30/77	FY77: $20,000	TOTAL: $40,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Levy, E. H	HQ-ST/Timothy, A F	13-Physics

NSG 7201 **University of Arizona** **1138**
Orbital resonances in the planet-building process

Period	Obligations	
04/01/76-06/30/77	FY77:	TOTAL: $43,473
Prin Invest	**NASA Tech Officer**	**CASE Category**
Greenberg, R	HQ-SL/Williams, R. J.	32-Geological Sci
Hartmann, W. K.		
Apman, C. H.		

NSG 7238 **University of Arizona** **1139**
1977 Uranus occultation

Period	Obligations	
05/01/76-04/30/77	FY77:	TOTAL: $41,580
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hubbard, W B.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ/Fellows, R F	

NSG 7246 **University of Arizona** **1140**
Carbonaceous fragments

Period	Obligations	
07/01/76-06/30/78	FY77 $19,490	TOTAL: $36,720
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gehrels, A. M.	HQ-SL/French, B. M.	32-Geological Sci
Degewij, J.	HQ-SL/Quaide, W. L	

NSG 7249 **University of Arizona** **1141**
High precision polarimetry of meteorites

Period	Obligations	
07/01/76-02/28/78	FY77. $23,684	TOTAL: $53,966
Prin Invest	**NASA Tech Officer**	**CASE Category**
Zellner, B H.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

NSG 7265 **University of Arizona** **1142**
Analysis of cloud motions in the Pioneer 10 and 11 photographs of Jupiter

Period	Obligations	
08/01/76-07/31/77	FY77.	TOTAL: $16,385
Prin Invest	**NASA Tech Officer**	**CASE Category**
Smith, B	HQ-SL/Fellows, R F	31-Atmos Sci

NSG 7333 **University of Arizona** **1143**
Study of isoelectric focusing for proteins and peptide hormones in a microgravity environment

Period	Obligations	
04/01/79-03/31/80	FY77. $425,000	TOTAL: $425,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Bier, M.	HQ-P/Vitale, J. A	59-Life Sci, NEC

NSG 7342 **University of Arizona** **1144**
Theoretical studies of solar oscillation

Period	Obligations	
04/01/77-09/30/77	FY77 $10,000	TOTAL: $10,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Goldreich, P.	HQ-ST/Timothy, A. F	13-Physics

NSG 7358 **University of Arizona** **1145**
International meeting and book on 'protostars and planets'

Period	Obligations	
11/01/77-10/31/78	FY77 $8,000	TOTAL: $8,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gehrels, A M.	HQ-SA/Roman, N G	11-Astronomy
	HQ-SS/Rasool, I S	

NSG 7368 **University of Arizona** **1146**
A deep near infrared photographic sky survey as a support tool for the infrared astronomical satellite

Period	Obligations	
06/15/77-06/14/78	FY77. $16,111	TOTAL: $16,111
Prin Invest	**NASA Tech Officer**	**CASE Category**
Craine, E. R.	HQ-SA/Boggess, N. W.	11-Astronomy
	HQ-SA/Roman, N G	

ARIZONA (Continued)

NSG 7374 **University of Arizona** **1147**
Evaluation of a field-ionization neutral mass spectrometer

Period	Obligations	
08/01/77-11/30/77	FY77: $13,000	TOTAL: $13,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hsieh, K. C.	HQ-SL/Donn, B. D.	11-Astronomy

ARKANSAS

NAS 9-14921 **Harding College** **1148**
Study of optimal training protocols and devices for developing and maintaining physical fitness in females prior to and during space flight

Period	Obligations	
03/01/76-01/31/78	FY77: $37,100	TOTAL: $86,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Olree, H. D.	JSC/Rummel, J. A.	53-Other Medical

NAS 8-31550 **University of Arkansas - Fayetteville** **1149**
Statistical analyses of multivariate atmospheric variables

Period	Obligations	
10/31/75-07/31/78	FY77: $20,000	TOTAL: $32,485
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tubbs, J. D.	MSFC/Falls, L. W.	31-Atmos Sci
	MSFC/Smith, O. E.	

NAS 8-31771 **University of Arkansas - Fayetteville** **1150**
Data processing and display of laser/Doppler dust-devil experimental results

Period	Obligations	
01/12/76-09/12/76	FY77:	TOTAL: $18,820
Prin Invest	*NASA Tech Officer*	*CASE Category*
Skeith, R. W.	MSFC/Huffaker, R. M	31-Atmos Sci
Ashmore, B.	MSFC/Jeffreys, H. B.	

NAS 9-14251 **University of Arkansas - Fayetteville** **1151**
Remote sensing of soil moisture content

Period	Obligations	
06/01/74-05/31/78	FY77: $54,500	TOTAL: $133,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Waite, W. P.	JSC/Demel, K. E.	19-Phys Sci, NEC

NGL 04-001-007 **University of Arkansas - Fayetteville** **1152**
Application of lasers to instrumentation & measurement techniques

Period	Obligations	
06/15/70-02/28/78	FY77: $10,058	TOTAL: $346,757
Prin Invest	*NASA Tech Officer*	*CASE Category*
Testerman, M. K.	ARC/Ragent, B.	41-Aero Engr
Mazumder, M. K.		

NSG 7106 **University of Arkansas - Fayetteville** **1153**
Scalable standard optical sources in VUV: Emissions from electron impact on metals

Period	Obligations	
02/15/75-02/14/78	FY77: $25,000	TOTAL: $67,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hughes, R. H.	HQ-SA/Rosendhal, J. D	11-Astronomy
	HQ-SA/Roman, N. G	

NCA 2-45601 **University of Arkansas - Little Rock** **1154**
Aerosol kinetics in high speed wind tunnels

Period	Obligations	
03/11/76-08/31/77	FY77:	TOTAL: $10,313
Prin Invest	*NASA Tech Officer*	*CASE Category*
Testerman, M. K.	ARC/Johnson, D. A.	41-Aero Engr

NSG 7216 **University of Arkansas - Monticello** **1155**
Thickness of mare basalts: Western Mare Basins

Period	Obligations	
02/01/76-01/31/78	FY77: $10,000	TOTAL: $17,321
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dehon, R. A.	HQ-SL/Goldstein, B. F	
	HQ-SL/Quaide, W. L	32-Geological Sci

NSG 7244 **University of Arkansas - Monticello** **1156**
Mercury geological mapping

Period	Obligations	
06/01/76-05/31/77	FY77:	TOTAL: $7,247
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dehon, R. A	HQ-SL/Dwornik, S. F.	32-Geological Sci
	HQ-SL/Wahmann, R.	

CALIFORNIA

NAS 1-9703 **California Institute of Technology** **1157**
Pioneer F/G data analysis Viking 1975 missions

Period	Obligations	
04/08/70-09/30/78	FY77: $254,589	TOTAL: $1,157,618
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D. L.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	39-Env Sci, NEC

NAS 1-12311 **California Institute of Technology** **1158**
Participation in science planning for Viking 1975 mission in the area of biology

Period	Obligations	
07/02/73-12/31/77	FY77: $87,599	TOTAL: $288,193
Prin Invest	*NASA Tech Officer*	*CASE Category*
Horowitz, N. H.	LARC/Williams, T. S., Jr.	51-Biology
	LARC/Glenny, W. R.	

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NAS 2-6556 **California Institute of Technology** **1159**
Pioneer F/G data analysis

Period	Obligations	
09/17/71-09/30/77	FY77:	TOTAL: $205,949
Prin Invest	*NASA Tech Officer*	*CASE Category*
Munch, G.	ARC/Hall, C. F. ARC/Porter, D. L	11-Astronomy

NAS 5-11066 **California Institute of Technology** **1160**
IMP-H&J electron isotope spectrometer experiment

Period	Obligations	
01/12/68-10/31/77	FY77: $140,000	TOTAL: $1,832,321
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stone, E. C.	GSFC/Davis, M. A.	13-Physics

NAS 5-20721 **California Institute of Technology** **1161**
High energy cosmic rays experiment for International Sun Earth Explorer spacecraft

Period	Obligations	
02/07/75-07/30/80	FY77: $335,600	TOTAL: $1,455,600
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stone, E. C.	GSFC/Gallagher, W. F. GSFC/Davis, M. A.	13-Physics

NAS 5-22555 **California Institute of Technology** **1162**
Mission definition study of an astronomical satellite survey in the infrared

Period	Obligations	
06/15/75-09/19/76	FY77:	TOTAL: $25,760
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neugebauer, G.	GSFC/Hymowitz, E. W.	11-Astronomy

NAS 5-22939 **California Institute of Technology** **1163**
Helioscope camera definition study

Period	Obligations	
03/10/76-06/01/78	FY77: $14,626	TOTAL: $39,627
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zirin, H. Prout, R. A.	GSFC/Neupert, W. M.	11-Astronomy

NAS 5-22965 **California Institute of Technology** **1164**
Nimbus G earth radiation budget sensor support

Period	Obligations	
01/27/76-01/26/79	FY77: $15,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ingersoll, A. P.	GSFC/Nelsen, E. D.	31-Atmos Sci

NAS 5-23315 **California Institute of Technology** **1165**
Cosmic X-ray experiment for HEAO-2

Period	Obligations	
11/15/73-04/30/78	FY77: $113,000	TOTAL: $649,746
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garmire, G. P.	GSFC, Wrublik, D. P.	11-Astronomy

NAS 5-23615 **California Institute of Technology** **1166**
Extreme ultraviolet and soft X-ray study

Period	Obligations	
06/21/76-11/05/76	FY77: $7,849	TOTAL: $16,851
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garmire, G. P.	GSFC/Weinreb, M. B.	11-Astronomy

NAS 5-23696 **California Institute of Technology** **1167**
Antenna design and millimeter-wave interferometry study

Period	Obligations	
08/09/76-12/17/76	FY77:	TOTAL: $49,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leighton, R. B.	GSFC/Bensimon, M.	11-Astronomy

NAS 5-24339 **California Institute of Technology** **1168**
Xe-filled proportional counter and study on use with hard X-ray imaging instrument

Period	Obligations	
09/28/77-05/27/78	FY77: $54,960	TOTAL: $54,960
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garmire, G. P.	GSFC/Stouffer, C. G.	13-Physics

NAS 8-27978 **California Institute of Technology** **1169**
Design, development & operation of the ACR-7

Period	Obligations	
06/23/72-07/15/80	FY77: $51,000	TOTAL: $268,060
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stone, E. C.	MSFC/Krome, H. O. MSFC/Cochran, J.	11-Astronomy

NAS 8-29313 **California Institute of Technology** **1170**
Dynamics of unsteady cavitating cascades

Period	Obligations	
09/28/72-10/15/78	FY77: $64,945	TOTAL: $353,957
Prin Invest	*NASA Tech Officer*	*CASE Category*
Acosta, A. J.	MSFC/Gross, L. A. MSFC/Stinson, H. P., Jr.	46-Mech Engr

NGL 05-002-003 **California Institute of Technology** **1171**
Basic scientific research on lunar & planetary exploration

Period	Obligations	
12/01/59-11/30/79	FY77: $188,545	TOTAL: $2,848,833
Prin Invest	*NASA Tech Officer*	*CASE Category*
Muhleman, D. O.	HQ-SL/Brunk, W. E HQ-SL/Fellows, R. F.	11-Astronomy

NGL 05-002-034 **California Institute of Technology** **1172**
Research in solar flares and the solar atmosphere

Period	Obligations	
05/18/65-09/30/77	FY77: $225,000	TOTAL: $2,357,353
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zirin, H.	HQ-ST/Timothy, A. F	11-Astronomy

NGL 05-002-069 **California Institute of Technology** **1173**
Theoretical investigation of planetary interiors

Period	Obligations	
06/12/67-02/28/78	FY77.	TOTAL $553,729
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D. L.	HQ-SL/Bryson, R P HQ-SL/Robertson, F. I.	32-Geological Sci

NGL 05-002-105 **California Institute of Technology** **1174**
Shock effects in minerals

Period	Obligations	
08/16/68-03/31/80	FY77 $134,275	TOTAL $887,404
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ahrens, T J	HQ-SL/Goldstein, B E HQ-SL/Quaide, W L.	32-Geological Sci

NGL 05-002-134 **California Institute of Technology** **1175**
Modern astronomical instrument development

Period	Obligations	
10/27/69-09/30/79	FY77.	TOTAL: $600,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kasten, R.	HQ-SA/Rosendahl, J D HQ-SA Roman, N. G	11-Astronomy

NGL 05-002-140 **California Institute of Technology** **1176**
Research in planetary astronomy

Period	Obligation	
04/11/69-03/31/80	FY77 $37,045	TOTAL $457,950
Prin Invest	*NASA Tech Officer*	*CASE Category*
Munch, G.	HQ-SL/Brunk, W. E. HQ-SL/Qaide, W L.	11-Astronomy

NGL 05-002-188 **California Institute of Technology** **1177**
Lunar sample analysis

Period	Obligations	
02/03/71-01/31/80	FY77 $551,481	TOTAL $3,982,334
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wasserburg, G. J	JSC/Harris, J. W	12-Chemistry

NGL 05-002-190 **California Institute of Technology** **1178**
Lunar sample analysis

Period	Obligations	
01/19/71-01/31/80	FY77 $72,415	TOTAL $799,025
Prin Invest	*NASA Tech Officer*	*CASE Category*
Epstein, S	JSC/Harris, J W	13-Physics

NGL 05-002-207 **California Institute of Technology** **1179**
Research in infrared and X-ray astronomy

Period	Obligations	
02/18/71-09/30/79	FY77 $120,000	TOTAL $685,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neugebauer, G.	HQ-SA/Boggess, N. W HQ-SA/Roman, N. G	11-Astronomy

NGL 05-002-338 **California Institute of Technology** **1180**
Petrologic and microprobe investigations on isotopically dated lunar samples

Period	Obligations	
02/01/74-01/31/80	FY77. $90,369	TOTAL. $387,481
Prin Invest	*NASA Tech Officer*	*CASE Category*
Albee, A. L	JSC/Harris, J W	13-Physics

NGR 05-002-114 **California Institute of Technology** **1181**
Radio interferometry of Mars and Venus

Period	Obligations	
10/11/68-09/30/77	FY77. $46,195	TOTAL $324,071
Prin Invest	*NASA Tech Officer*	*CASE Category*
Muhleman, D O.	HQ-SL/Brunk, W E HQ-SL/Fellows, R E	11-Astronomy

NGR 05-002-117 **California Institute of Technology** **1182**
Analysis and evaluation of alternative approaches to photography from a Mercury/Venus flyby

Period	Obligations	
10/01/68-01/31/78	FY77: $10,247	TOTAL $573,022
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murray, B C	HQ-SL/Dwornik, S E HQ-SL/Wahmann, R	32-Geological Sci

NGR 05-002-121 **California Institute of Technology** **1183**
A study of water metabolism in neurospora crassaa

Period	Obligations	
01/01/69-12/31/77	FY77: $55,000	TOTAL: $384,119
Prin Invest	*NASA Tech Officer*	*CASE Category*
Horowitz, N. H	HQ-SB/Young, R S.	51-Biology

NGR 05-002-160 **California Institute of Technology** **1184**
Research in particles and fields

Period	Obligations	
10/27/69-09/30/77	FY77 $329,000	TOTAL $2,274,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vogt, R. E	HQ-SA/Sofia, S HQ-SA/Opp, A G	11-Astronomy

NGR 05-002-256 **California Institute of Technology** **1185**
Study and research on experimental tests of gravitation theory

Period	Obligations	
02/23/72-12/31/77	FY77. $4,487	TOTAL $140,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thorne, K. S.	HQ-SA/Boggess, N. W HQ-SA/Roman, N G	11-Astronomy

NGR 05-002-281 **California Institute of Technology** **1186**
High angular resolution of H II regions and associated galactic sources

Period	Obligations	
03/01/73-08/31/78	FY77 $73,865	TOTAL $288,528
Prin Invest	*NASA Tech Officer*	*CASE Category*
Werner, M W	ARC/Gillespie, C M., Jr ARC/Cameron, R. M.	11-Astronomy

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NGR 05-002-284 **California Institute of Technology** **1187**
High angular resolution cosmic X-ray astronomy observations in the energy band 0.15-2KE observations of early stars from an attitude controlled rocket

Period	Obligations	
03/05/73-12/31/77	FY77. $60,000	TOTAL: $752,079
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garmire, G. P.	GSFC/Bissell, E. F. HQ-SA/Opp, A. G.	11-Astronomy

NGR 05-002-303 **California Institute of Technology** **1188**
Systematic search program for new Apollo Amor asteroids

Period	Obligations	
08/01/73-09/30/77	FY77: $64,131	TOTAL. $192,263
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shoemaker, E. M.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci

NGR 05-002-333 **California Institute of Technology** **1189**
Lunar sample analysis

Period	Obligations	
02/01/74-01/31/78	FY77: $80,100	TOTAL: $375,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tombrello, T. A.	JSC/Harris, J. W.	13-Physics

NGR 05-002-345 **California Institute of Technology** **1190**
A 65-100 cm aperture photo-heliograph for the space shuttle

Period	Obligations	
10/01/73-09/30/77	FY77 $55,000	TOTAL: $335,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zirin, H.	HQ-ST/Timothy, A. F.	13-Physics

NSG 1005 **California Institute of Technology** **1191**
Utilization of stags to determine knockdown factors from measured initial imperfections

Period	Obligations	
07/01/74-10/31/78	FY77: $43,875	TOTAL. $101,097
Prin Invest	*NASA Tech Officer*	*CASE Category*
Babcock, C. D., Jr.	LARC/Davis, R. C.	41-Aero Engr

NSG 2229 **California Institute of Technology** **1192**
Methane and stratospheric water

Period	Obligations	
09/01/77-08/31/78	FY77: $28,656	TOTAL: $28,656
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yung, Y. L.	ARC/Pollack, J. B.	31-Atmos Sci

NSG 5058 **California Institute of Technology** **1193**
Seismotectonic studies of areas of major world-wide earthquakes utilizing ERTS images

Period	Obligations	
04/01/75-10/31/77	FY77:	TOTAL. $8,034
Prin Invest	*NASA Tech Officer*	*CASE Category*
Allen, C. R.	GSFC/Lowman, P. D.	39-Env Sci, NEC

NSG 5197 **California Institute of Technology** **1194**
Search for periodic variations in the X-ray flux from the galactic center

Period	Obligations	
08/01/77-07/31/78	FY77. $10,109	TOTAL: $10,109
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garmire, G. P.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5208 **California Institute of Technology** **1195**
Support of joint infrared and Copernicus X-ray observations

Period	Obligations	
09/01/77-08/31/78	FY77 $5,986	TOTAL: $5,986
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neugebauer, G.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7084 **California Institute of Technology** **1196**
Technical evaluation and development of the ion probe

Period	Obligations	
07/01/74-06/30/76	FY77.	TOTAL: $82,214
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wasserburg, G. J.	HQ-SL/Bryson, R. P. HQ-SL/Roberson, F. I.	32-Geological Sci

NSG 7094 **California Institute of Technology** **1197**
Reduction of Mariner 71 infrared radiometer data

Period	Obligations	
07/01/74-09/30/77	FY77:	TOTAL. $18,567
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neugebauer, G.	HQ-SL/Fellows, R. F.	32-Geological Sci

NSG 7125 **California Institute of Technology** **1198**
Scientific rationale and feasibility of developing a planetary scanning electron microscope

Period	Obligations	
04/01/75-09/30/77	FY77	TOTAL. $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Albee, A. L.	HQ-SL/Dwornik, S. E.	19-Phys Sci, NEC

NSG 7129 **California Institute of Technology** **1199**
Relationship of impact cratering to the evolution of the lunar surface

Period	Obligations	
04/01/75-03/31/80	FY77 $62,333	TOTAL. $239,162
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ahrens, T. J.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7155 **California Institute of Technology** **1200**
Data analysis of Mariner 10 imagery of Mercury

Period	Obligations	
05/01/75-06/30/76	FY77	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murray, B. C.	HQ-SL/Dwornik, S. E. HQ-SL/Holt, H. E.	32-Geological Sci

NSG 7160 **California Institute of Technology** **1201**
Develop design criteria for penetrator emplacement of a multi-station seismic experiment on Mars

Period	Obligations	
07/01/75-02/28/77	FY77.	TOTAL: $32,196
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D. L.	HQ-SL/Dwornik, S. E.	32-Geological Sci

NSG 7195 **California Institute of Technology** **1202**
The origin of the chemical elements of stellar flashes

Period	Obligations	
04/01/76-03/15/77	FY77.	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Christysackmann, I. J	HQ-SA/Roman, N. G.	11-Astronomy

NSG 7202 **California Institute of Technology** **1203**
Laboratory partitioning studies relevant to the interpretation of lunar and meteoritic trace element data

Period	Obligations	
02/01/76-01/31/78	FY77 $75,671	TOTAL: $144,338
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burnett, D. S.	HQ-SL/Goldstein, B. E. HQ SL/Quaide, W. L.	32-Geological Sci

NSG 7275 **California Institute of Technology** **1204**
Heteronuclear spin dynamics and new tools for characterization of bulk and surface properties of solids

Period	Obligations	
10/01/76-09/30/77	FY77: $26,123	TOTAL: $26,123
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vaughan, R.	HQ-RR/Randolph, L. P. JPL/Khim, R. K.	13-Physics

NSG 7316 **California Institute of Technology** **1205**
Crater modification by gravity

Period	Obligations	
02/01/77-01/30/78	FY77: $32,440	TOTAL: $32,440
Prin Invest	*NASA Tech Officer*	*CASE Category*
Melosh, H. J.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7376 **California Institute of Technology** **1206**
Photochemistry of the Jovian planets and their satellites

Period	Obligations	
11/01/77-10/31/78	FY77 $27,000	TOTAL: $27,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yung, Y. L.	HQ-SL/Mitz, M. A.	31-Atmos Sci
Strobel, D. F.	HQ-SL/Brunk, W. E.	

NSG 9019 **California Institute of Technology** **1207**
Shock compression measurements on lunar samples

Period	Obligations	
10/01/74-01/31/78	FY77: $63,000	TOTAL: $219,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ahrens, T. J.	JSC/Harris, J. W.	19-Phys Sci, NEC

NCA 2-678701 **California Polytechnic State Univ** **1208**
Algorithm development for monitoring structural dynamics

Period	Obligations	
09/03/76-09/02/78	FY77: $4,000	TOTAL: $24,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Grimes, J. E.	ARC/Maisel, M. D. ARC/Robinson, R. C	22-Computer Sci

NSG 4014 **California Polytechnic State Univ.** **1209**
Wake vortex turbulence study using radio controlled models

Period	Obligations	
09/23/77-09/22/78	FY77 $24,981	TOTAL $24,981
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sandlin, D. R. Nicolaides, J. D	DFRC/Banner, R. D DFRC/Friend, E. L.	41-Aero Engr

NCA 2-720701 **California State College, S[illegible]** **1210**
Study of the calk-alkaline plutonic complex [illegible] outhwestern Sierra Nevada foothills

Period	Obligations	
08/15/76-12/31/77	FY77.	L. $3,333
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vennum, W.	ARC/Bunch, T. E.	32-Geological Sci

NASW 2835 **California State University - Chico** **1211**
Spacemobile operation and maintenance Space science education project

Period	Obligations	
07/01/75-06/30/78	FY77: $1,263,349	TOTAL: $2,629,421
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-EE/Rich, W. B	99-Multi-Discip

NSG 2240 **California State University - Chico** **1212**
Thermal physical aspects of thermo plastic polymers and films

Period	Obligations	
06/01/77-09/09/77	FY77 $3,000	TOTAL $3,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sours, C. R	ARC/Kourtides, D. A. ARC/Gilwee, W. J., Jr.	12-Chemistry

NAS 1-14621 **California State University - Fullerton** **1213**
Participation in the science planning for the Viking 1975 missions in the area of meteorology

Period	Obligations	
08/16/76-09/30/78	FY77: $72,000	TOTAL $72,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ryan, J. A	LARC/Ward, J. C., Jr LARC/Glenny, W. R.	31-Atmos Sci

NCA 2-253701 **California State University - Fullerton** **1214**
Fourier transform infrared spectra of several Freons

Period	Obligations	
06/01/77-09/30/77	FY77: $5,000	TOTAL: $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nanes, R.	ARC/Boese, R. W.	13-Physics

NSG 7314 **California State University - Fullerton** **1215**
Meteoritic bismuth and lead-208 micro distributions

Period	Obligations	
02/01/77-01/31/78	FY77: $28,340	TOTAL: $28,340
Prin Invest	*NASA Tech Officer*	*CASE Category*
Woolum, D. S.	HQ-SL/French, B. M.	32-Geological Sci
Burnett, D. S.	HQ-SL/Quaide, W. L.	

NCA 2-290704 **California State Univ.- hayward** **1216**
Investigations of racemization of amino acids in geologic materials

Period	Obligations	
10/01/76-09/30/78	FY77: $3,990	TOTAL: $3,990
Prin Invest	*NASA Tech Officer*	*CASE Category*
Warnke, D. A.	ARC/Pollock, G. E.	32-Geological Sci

NCA 2-290705 **California State Univ.- hayward** **1217**
Study, review, and summary of the characteristics of adaptive work groups and how their quality is are achieved

Period	Obligations	
11/01/76-10/31/77	FY77: $18,074	TOTAL: $18,074
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sieber, J.	ARC/Tanner, T. A., Jr.	62-Social Aspects

NSG 2199 **California State University - Los Angeles** **1218**
Biochemical and structural studies on the thermal resistance of 'hardy' bacterial spores

Period	Obligations	
01/01/77-04/01/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Andreoli, A. J.	ARC/Hochstein, L. I.	51-Biology

NSG 7329 **California State University - Los Angeles** **1219**
Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines

Period	Obligations	
06/15/76-09/01/77	FY77:	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Maniv, R.	HQ-P/Pohly, J. G.	46-Mech Engr

NSG 7261 **California State University - Los Angeles** **1220**
Vacuum ultraviolet photoactivation of molecular nitrogen

Period	Obligations	
07/01/76-06/30/77	FY77:	TOTAL: $4,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bragin, J.	HQ-SR/Young, R. S.	12-Chemistry

NSG 7263 **California State University - Los Angeles** **1221**
Differential scanning calorimetry of coal

Period	Obligations	
11/15/76-11/14/77	FY77:	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gold, P. I.	JPL/England, C.	46-Mech Engr

NSG 3065 **California State University - Northridge** **1222**
Study of rolling element dynamic interactions with separators and raceway paths

Period	Obligations	
05/15/75-10/14/78	FY77:	TOTAL: $69,980
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nypan, L. J.	LERC/Coe, H. H.	46-Mech Engr

NSG 4011 **California State University - Northridge** **1223**
Computer graphics: Integration of twenty years experience

Period	Obligations	
04/01/77-03/31/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Abbott, R. J.	DFRC/Anderson, K. F.	22-Computer Sci
	DFRC/Yount, S. K.	

NGR 05-058-003 **California State University - Sacramento** **1224**
Development of combustion stability specifications and verification procedures for liquid propellant rocket engines

Period	Obligations	
02/23/72-09/30/78	FY77: $[illegible]47	TOTAL: $31,269
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reardon, F. H.	LERC/Priem, [illegible]J	42-Astro Engr

NSG 2244 **Humboldt State University** **1225**
Developing and demonstrating an institutional mechanism for transferring remote sensing technology

Period	Obligations	
06/01/77-12/31/77	FY77 $312,032	TOTAL: $312,032
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hankins, D.	ARC/Padrick, B. D.	19-Phys Sci, NEC

NSG 2159 **Pepperdine University** **1226**
An assessment of attitudes in the aeronautical community on conducting aeronautical research and technology in government laboratories

Period	Obligations	
06/01/76-08/31/77	FY77:	TOTAL: $14,532
Prin Invest	*NASA Tech Officer*	*CASE Category*
Album, H. J.	ARC/Hornby, H.	75-Political Sci

NAS 1-11854 **Pomona College** **1227**
Participation in inorganic chemistry planning for the Viking 1975 missions

Period	Obligations	
08/09/72-06/30/78	FY77: $68,739	TOTAL: $113,821
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baird, A. K.	LARC/Williams, T. S., Jr.	12-Chemistry
	LARC/Glenny, W. R.	

NAS 5-23249 **San Diego State University** **1228**
Atmospheric transmission measurements

Period	Obligations	
05/25/73-09/25/76	FY77:	TOTAL: $43,998
Prin Invest	*NASA Tech Officer*	*CASE Category*
Angione, R. J.	GSFC/Roosen, R. G.	11-Astronomy

NSG 1430 **San Diego State University** **1229**
Use of the Chappuis band for determination of modern and historical stratospheric ozone levels

Period	Obligations	
07/15/77-07/14/78	FY77: $33,715	TOTAL: $33,715
Prin Invest	*NASA Tech Officer*	*CASE Category*
Angione, R. J.	LARC/Levine, J. S.	31-Atmos Sci

NSG 7026 **San Diego State University** **1230**
Thermodynamic models of lunar meteorite impact incorporating a target porosity parameter

Period	Obligations	
06/01/74-05/31/78	FY77: $25,000	TOTAL: $110,728
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rehfuss, D. E.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NCA 2-660501 **San Francisco State University** **1231**
Use of campus facilities

Period	Obligations	
08/01/74-09/30/77	FY77. $47,356	TOTAL: $186,020
Prin Invest	*NASA Tech Officer*	*CASE Category*
Eisenberg, L	ARC/Tau, K. A.	99-Multi-Discip
Summerfelt, J. P.		

NCA 2-660701 **San Francisco State University** **1232**
Binding interactions of 5' nucleotides and their derivatives with amino acids

Period	Obligations	
10/01/76-11/30/77	FY77 $6,950	TOTAL: $6,950
Prin Invest	*NASA Tech Officer*	*CASE Category*
Orenberg, J. B.	ARC/Lawless, J. G.	12-Chemistry

NCA 2-660703 **San Francisco State University** **1233**
Three-dimensional numerical calculations related to star formation

Period	Obligations	
06/02/77-06/01/78	FY77: $20,500	TOTAL: $20,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hagar, C.	ARC/Black, D. C.	13-Physics
Bodenheimer, P.		

NCA 2-660704 **San Francisco State University** **1234**
Preparation of a model Martian soil

Period	Obligations	
09/15/77-09/14/78	FY77: $7,150	TOTAL: $7,150
Prin Invest	*NASA Tech Officer*	*CASE Category*
Orenberg, J. B.	ARC/Klein, H. P.	59-Life Sci, NEC
	ARC/DeVincenzi, D. L	

NSG 2210 **San Francisco State University** **1235**
Elements of search strategy for SETI

Period	Obligations	
01/15/77-12/31/77	FY77: $54,252	TOTAL: $54,252
Prin Invest	*NASA Tech Officer*	*CASE Category*
Seeger, C. L.	ARC/Illingham, J. B.	99-Multi-Discip
	ARC/Wolfe, J. H.	

NSG 7234 **San Francisco State University** **1236**
Melanoidin and aldocyanoin microspheres: New model systems for precellular chemical evolution

Period	Obligations	
06/01/76-05/31/77	FY77:	TOTAL: $7,450
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kenyon, D. H.	HQ-SB/Young, R. S.	12-Chemistry

NCA 2-675520 **San Jose State University** **1237**
Parameterization and boundary layer processes

Period	Obligations	
04/01/75-06/30/77	FY77.	TOTAL: $9,950
Prin Invest	*NASA Tech Officer*	*CASE Category*
Miller, A	ARC/Swan, P. R.	41-Aero Engr

NCA 2-675612 **San Jose State University** **1238**
Artificial ablation of the Murchison (C2) meteor

Period	Obligations	
02/01/76-08/31/77	FY77: $4,000	TOTAL: $11,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Maddock, P. L.	ARC/Blanchard, M. B.	11-Astronomy

NCA 2-675706 **San Jose State University** **1239**
Preparation and testing of fire extinguishment chemicals suitable for engine nacelle fire control in aircraft

Period	Obligations	
09/01/76-01/31/78	FY77: $26,042	TOTAL: $26,042
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ling, A. C.	ARC/Altman, R. L.	12-Chemistry
Mayer, L. A		

NCA 2-675707 **San Jose State University** **1240**
Joint use of specialized resources to support literature surveillance and bibliographic preparation on chemical evolution and the origin of life

Period	Obligations	
01/01/77-12/31/77	FY77: $5,350	TOTAL: $5,350
Prin Invest	*NASA Tech Officer*	*CASE Category*
West, M.	ARC/Chang, S.	59-Life Sci, NEC
Koch, R. A.		

NCA 2-675708 **San Jose State University** **1241**
Cosmic ray neutron dosimetry

Period	Obligations	
01/01/77-01/31/78	FY77: $14,719	TOTAL: $14,719
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tucker, A. B.	ARC/Hewitt, J. E.	13-Physics

NCA 2-675709 **San Jose State University** **1242**
A study of stall avoidance to determine stall prediction criteria

Period	Obligations	
02/15/77-02/15/78	FY77. $6,900	TOTAL. $6,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leonard, T.	ARC/Hicks, R. M.	41-Aero Engr

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NCA 2-675710 **San Jose State University** **1243**
Histaminergic neural pathways in the mammalian brain

Period	*Obligations*	
05/01/77-04/30/78	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fox, R.	ARC/Danellis, J. V.	61-Biol Aspects

NCA 2-675711 **San Jose State University** **1244**
Multi-dimensional chemical/dynamical models of the stratosphere and mesosphere

Period	*Obligations*	
06/04/77-06/03/78	FY77: $17,942	TOTAL: $17,942
Prin Invest	*NASA Tech Officer*	*CASE Category*
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci

NGL 05-046-002 **San Jose State University** **1245**
Angular acceleration in man

Period	*Obligations*	
09/01/67-08/31/79	FY77: $126,195	TOTAL: $1,047,928
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clark, W. B.	ARC/Stewart, J. D.	69-Psych, NEC

NGR 05-046-011 **San Jose State University** **1246**
Investigation of transport parameters relating to hyperfiltration for waste water purification

Period	*Obligations*	
04/01/70-12/31/77	FY77: $50,157	TOTAL: $294,324
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spitze, L. A.	ARC/Wydeven, T. J.	12-Chemistry

NSG 2047 **San Jose State University** **1247**
Study of planetary meteorology

Period	*Obligations*	
09/15/74-03/31/78	FY77: $7,737	TOTAL: $32,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Riegel, C. A.	ARC/Pollack, J. B.	11-Astronomy

NSG 2066 **San Jose State University** **1248**
The development of superoxides as improved oxygen sources for breathing apparatus

Period	*Obligations*	
01/20/75-06/19/78	FY77: $40,316	TOTAL: $119,834
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spitze, L. A.	ARC/Wydeven, T. J.	12-Chemistry
Ballou, E. V.		

NSG 2090 **San Jose State University** **1249**
Oxygen effects and early biochemical evolution

Period	*Obligations*	
06/01/75-05/31/78	FY77: $25,300	TOTAL: $72,732
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neptune, J. A.	ARC/Klein, H. P.	51-Biology
Satyanarayana, T.		

NSG 2105 **San Jose State University** **1250**
Study of toxicity of pyrolysis effluent of fire resistant polymers for aircraft interiors

Period	*Obligations*	
08/01/75-11/30/77	FY77: $12,000	TOTAL: $57,326
Prin Invest	*NASA Tech Officer*	*CASE Category*
Young, W.	ARC/Kourtides, D. A.	43-Chem Engr
Young, J. H.	ARC/Parker, J. A.	

NSG 2111 **San Jose State University** **1251**
Nuclear magnetic resonance study of oxidation of unsaturated elastomers

Period	*Obligations*	
10/01/75-09/30/77	FY77: $15,867	TOTAL: $27,937
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neptune, J. A.	ARC/Bolub, M. A.	12-Chemistry
Rosenberg, M. L.	ARC/Parker, J. A.	

NSG 2130 **San Jose State University** **1252**
Two-dimensional stratospheric model modification

Period	*Obligations*	
02/01/76-03/31/78	FY77: $54,880	TOTAL: $76,080
Prin Invest	*NASA Tech Officer*	*CASE Category*
Riegel, C. A.	ARC/Whitten, R. C.	31-Atmos Sci
	ARC/Borucki, W. J.	

NSG 2165 **San Jose State University** **1253**
Simulation of hot surface ignition of flammable liquids and relative effectiveness of nacelle fire knockdown and suppression for flow Mach numbers between zero and 0.1

Period	*Obligations*	
07/01/76-12/31/77	FY77:	TOTAL: $73,310
Prin Invest	*NASA Tech Officer*	*CASE Category*
Myronuk, D. J.	ARC/Riccitiello, S. R.	49-Engr, NEC
	ARC/Fish, R. H.	

NSG 2167 **San Jose State University** **1254**
Preliminary design of ships passive fire protection systems. Structural engineering design

Period	*Obligations*	
07/01/76-09/30/77	FY77: $12,000	TOTAL: $28,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sharfstein, H. B.	ARC/Riccitiello, S. R.	44-Civil Engr
Gabrielsen, B. L.	ARC/Mansfield, J. A.	

NSG 2186 **San Jose State University** **1255**
Characterization and formulation of fluorocarbon ether elastomers

Period	*Obligations*	
10/01/76-09/30/78	FY77: $67,023	TOTAL: $67,023
Prin Invest	*NASA Tech Officer*	*CASE Category*
Neptune, J. A.	ARC/Rosser, R. W.	12-Chemistry
Korus, R. A.	ARC/Parker, J. A.	

NSG 2200 **San Jose State University** **1256**
Preliminary study of reticulated foam survivability characteristics

Period	Obligations	
01/01/77-12/31/77	FY77 $37,280	TOTAL: $37,280
Prin Invest	**NASA Tech Officer**	**CASE Category**
Sharfstein, H. B.	ARC/Riccitiello, S. R. ARC/Fish, R. H.	12-Chemistry

NSG 2209 **San Jose State University** **1257**
A study of processing parameters for non-metallic composites

Period	Obligations	
03/01/77-02/28/78	FY77: $15,457	TOTAL: $15,457
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ling, A. C.	ARC/Parker, J. A. ARC/Gilwe, W. J.	12-Chemistry

NSG 2213 **San Jose State University** **1258**
A unified system for the biological exploration of Mars

Period	Obligations	
03/01/77-02/28/78	FY77: $14,454	TOTAL: $14,454
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ballard, R. W.	ARC/Dalton, B. P ARC/Johnson, R. D.	51-Biology

NSG 2219 **San Jose State University** **1259**
Hot surface ignition temperature of aircraft hydraulic fluids

Period	Obligations	
05/01/77-12/31/77	FY77: $25,410	TOTAL: $25,410
Prin Invest	**NASA Tech Officer**	**CASE Category**
Myronuk, D. J.	ARC/Riccitiello, S. R. ARC/Fish, R. H.	12-Chemistry

NSG 2223 **San Jose State University** **1260**
Preparation of thermally stable dry chemicals

Period	Obligations	
05/01/77-01/31/78	FY77: $10,897	TOTAL: $10,897
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ling, A. C.	ARC/Altman, R. L. ARC/Kourtides, D. A.	12-Chemistry

NSG 2224 **San Jose State University** **1261**
Analytical/experimental study of passive fire protection systems

Period	Obligations	
04/15/77-04/14/78	FY77: $16,258	TOTAL: $16,258
Prin Invest	**NASA Tech Officer**	**CASE Category**
Holmstrom, F Durazzo, R. M.	ARC/Mansfield, J. A ARC/Riccitiello, S. R	49-Engr, NEC

NSG 2235 **San Jose State University** **1262**
Experimental study of passive fire protection systems

Period	Obligations	
05/01/77-04/30/78	FY77: $25,784	TOTAL: $25,784
Prin Invest	**NASA Tech Officer**	**CASE Category**
Anderson, R. Sohrab, S. H.	ARC/Mansfield, J. A. ARC/Riccitiello, S. R.	49-Engr, NEC

NSG 2236 **San Jose State University** **1263**
Feasibility study of using surface penetrators for mineral exploration

Period	Obligations	
05/01/77-04/30/78	FY77: $20,018	TOTAL: $20,018
Prin Invest	**NASA Tech Officer**	**CASE Category**
Anderson, D. W. Davis, A. S.	ARC/Blanchard, M. B ARC/Bunch, T. E.	32-Geological Sci

NSG 2237 **San Jose State University** **1264**
Modification of polymeric substrata for the gas chromatographic analyses CO, carbonyls and O2

Period	Obligations	
06/01/77-12/31/77	FY77: $6,996	TOTAL: $6,996
Prin Invest	**NASA Tech Officer**	**CASE Category**
Mayer, L. A.	ARC/Woeller, F.	12-Chemistry

NSG 2239 **San Jose State University** **1265**
Coastal zone color scanner surface truth measurements

Period	Obligations	
06/01/77-01/31/78	FY77: $14,975	TOTAL: $14,975
Prin Invest	**NASA Tech Officer**	**CASE Category**
Broenkow, W. W.	ARC/Wrigley, R. C.	33-Oceanography

NSG 2247 **San Jose State University** **1266**
Structural characterization of plasma polymerized perfluorobutene-2

Period	Obligations	
08/01/77-06/30/78	FY77: $25,207	TOTAL: $25,207
Prin Invest	**NASA Tech Officer**	**CASE Category**
Acrivos, J Naar, C.	ARC/Wydeven, T. J	12-Chemistry

NAS 1-9682 **Stanford University** **1267**
Participation in imaging planning for the Viking 1975 missions

Period	Obligations	
03/24/70-09/30/78	FY77: $143,461	TOTAL: $643,151
Prin Invest	**NASA Tech Officer**	**CASE Category**
Levinthal, E. C	LARC/Williams, T. S., Jr. LARC/Glenny, W. R	99-Multi-Discip

NAS 1-9692 **Stanford University** **1268**
Participation in the biology planning for the Viking 1975 missions

Period	Obligations	
04/13/70-09/30/78	FY77: $11,736	TOTAL: $67,572
Prin Invest	**NASA Tech Officer**	**CASE Category**
Lederberg, J	LARC/Williams, T. S., Jr LARC/Glenny, W. R.	51-Biology

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NAS 1-9701 **Stanford University** **1269**
Participation in the radio science planning for the Viking 1975 missions

Period	Obligations	
04/21/70-09/30/78	FY77: $72,610	TOTAL: $357,678
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tyler, G. L.	LARC/Williams, T. S., Jr. LARC/Glenny, W. R.	45-Elec Engr

NAS 2-6706 **Stanford University** **1270**
Electron microscope services

Period	Obligations	
12/06/71-10/13/77	FY77:	TOTAL: $125,849
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bensch, K. G.	ARC/Miquel, J.	51-Biology

NAS 2-8898 **Stanford University** **1271**
Selected studies in research and development management techniques

Period	Obligations	
06/09/75-12/31/77	FY77: $28,013	TOTAL: $96,684
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pederson, C. A.	ARC/Barnett, R. M. ARC/Eddy, R.	75-Political Sci

NAS 2-9083 **Stanford University** **1272**
Study of the applicability of integrated circuit sensor technology to general aviation orientation estimation

Period	Obligations	
12/01/75-11/01/78	FY77: $121,219	TOTAL: $137,682
Prin Invest	*NASA Tech Officer*	*CASE Category*
DeBra, D. B.	ARC/Denery, D. G. ARC/Creer, B. Y.	41-Aero Engr

NAS 2-9304 **Stanford University** **1273**
Study of control system concepts for the spacelab infrared telescope facility

Period	Obligations	
07/01/76-10/01/77	FY77: $25,858	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Powell, J. D.	ARC/Lorell, K. R. ARC/Melugin, R. K.	11-Astronomy

NAS 3-14336 **Stanford University** **1274**
Research for the fundamental study of full-coverage film cooling

Period	Obligations	
07/13/71-10/12/77	FY77: $60,100	TOTAL: $325,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kays, W. M.	LEWIS/Gaugler, R. E.	41-Aero Engr

NAS 5-20871 **Stanford University** **1275**
Experimental study of interactions in the magnetosphere between energetic particles and VLF waves

Period	Obligations	
02/11/75-12/11/79	FY77: $55,000	TOTAL: $491,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Helliwell, R. A.	GSFC/Davis, M. A.	13-Physics

NAS 5-21960 **Stanford University** **1276**
Gravity only orbit control subsystem

Period	Obligations	
12/21/73-12/21/77	FY77: $10,000	TOTAL: $202,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Berra, D. B.	GSFC/Kant, S.	42-Astro Engr

NAS 5-23522 **Stanford University** **1277**
Radiographic applications of spatial frequency multiplexing

Period	Obligations	
06/28/76-12/27/77	FY77: $20,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
MacOvski, A.	GSFC/Ostrow, H.	19-Phys Sci, NEC

NAS 5-23618 **Stanford University** **1278**
Extreme ultraviolet and soft X-ray study

Period	Obligations	
06/21/76-03/31/77	FY77: $6,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, A. B., Jr.	GSFC/Weinreb, M. B.	11-Astronomy

NAS 5-24232 **Stanford University** **1279**
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns

Period	Obligations	
06/01/77-11/30/78	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lyon, R. J.	GSFC/Broderick, J. C.	32-Geological Sci

NAS 8-31571 **Stanford University** **1280**
Structure and energy balance of coronal active regions

Period	Obligations	
02/01/76-05/31/77	FY77:	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, A. B., Jr.	MSFC/Bass, B. G. MSFC/Hagyard, M.	13-Physics

NAS 8-31769 **Stanford University** **1281**
Theoretical evaluation of the response of the ionosphere to the injection of chemically reactive vapor

Period	Obligations	
12/01/75-05/31/76	FY77:	TOTAL: $8,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
DaRosa, A. V.	MSFC/Roberts, W	13-Physics

NAS 8-32263 **Stanford University** **1282**
Scientific data reduction and analysis activities ATM/S 056 experiment

Period	Obligations	
10/01/76-09/30/77	FY77 $107,500	TOTAL $107,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Underwood, J. H.	MSFC/Snoddy, W. C.	11-Astronomy

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NAS 8-32355 **Stanford University** **1283**
Gyro test of general relativity in a satellite

Period	Obligations	
03/11/77-11/15/77	FY77: $215,125	TOTAL: $215,125
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fairbank, W. M.	MSFC/Potter, R.	13-Physics
Everitt, C. W.	MSFC/Decher, R.	
DeBra, D. B.		

NAS 8-32605 **Stanford University** **1284**
Superconducting bearings for application in cryogenic experiments in space

Period	Obligations	
08/01/77-07/31/78	FY77: $42,901	TOTAL: $42,901
Prin Invest	*NASA Tech Officer*	*CASE Category*
Everitt, C. W.	MSFC/Urban, E. W.	13-Physics
	MSFC/Decher, R.	

NAS 9-14716 **Stanford University** **1285**
Environmental stress and regulation of androgen secretion

Period	Obligations	
06/17/75-11/30/77	FY77: $25,000	TOTAL: $65,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Davidson, J. M.	JSC/Leach, C. S.	59-Life Sci, NEC

NAS 9-15342 **Stanford University** **1286**
The demonstration of a new Auger microprobe and radiation belt population through controlled precipitation induced by VLF waves

Period	Obligations	
05/23/77-02/28/78	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Helliwell, R. A.	JSC/McCoy, J. E.	19-Phys Sci, NEC

NASW 2916 **Stanford University** **1287**
Advanced studies in computer visual systems for exploratory vehicles

Period	Obligations	
03/01/76-02/28/77	FY77: $45,000	TOTAL: $90,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCarthy, J.	HQ-RE/Pontious, C. E	45-Elec Engr

NCA 2-745703 **Stanford University** **1288**
The demonstration of a new Auger microprobe and its application to electronic materials problems

Period	Obligations	
10/01/76-09/30/77	FY77: $7,252	TOTAL: $7,252
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spicer, W. E.	ARC/Poppa, H. R.	45-Elec Engr

NCA 2-745704 **Stanford University** **1289**
Study of techniques for representation of sub-grid scale phenomena in stratospheric circulation models

Period	Obligations	
10/01/76-01/31/78	FY77 $7,500	TOTAL: $7,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spreiter, J. R.	ARC/Watson, V. R.	31-Atmos Sci

NCA 2-745706 **Stanford University** **1290**
Adrenal modullary function in acute and chronic stress

Period	Obligations	
01/01/77-12/31/77	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barchas, J. D.	ARC/Danellis, J. V.	51-Biology

NCA 2-745707 **Stanford University** **1291**
Immunoregulatory activity of interferon

Period	Obligations	
11/01/76-10/31/77	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Merigan, T.	ARC/Mandel, A. D.	51-Biology

NCA 2-745708 **Stanford University** **1292**
Application of adaptive filters to enhancement of geomagnetic data

Period	Obligations	
12/10/76-09/14/77	FY77: $12,685	TOTAL: $12,685
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fairbank, W. M.	ARC/Jufer, E. J.	32-Geological Sci

NCA 2-745709 **Stanford University** **1293**
Glucocorticoid effects on bone formation in vitro

Period	Obligations	
01/01/77-09/30/78	FY77: $8 030	TOTAL: $8,030
Prin Invest	*NASA Tech Officer*	*CASE Category*
Feldman, D.	ARC/Holton, E. M.	5 · Other Medical

NCA 2-745710 **Stanford University** **1294**
Simulation development for multiple warning display experimentation

Period	Obligations	
03/01/77-04/30/78	FY77: $17,276	TOTAL: $17,276
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thompson, D A.	ARC/Randle, R. J.	49-Engr, NEC

NCA 2-745711 **Stanford University** **1295**
The catalytic activity and selectivity of supported metal catalysts

Period	Obligations	
11/15/76-11/14/77	FY77 $6,194	TOTAL $6,194
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pound, G. M.	ARC/Poppa, H. R.	47-Materials Engr

NCA 2-745712 **Stanford University** **1296**
Numerical solution of stiff differential equations

Period	Obligations	
06/15/77-03/15/78	FY77. $11,110	TOTAL: $11,110
Prin Invest	*NASA Tech Officer*	*CASE Category*
Golub, G. H.	ARC/Warming, R. F	21-Mathematics
Dahlquist, G. G.	ARC/Steger, J. L.	

NCA 2-745715 **Stanford University** **1297**
Dusty H II regions: Radiative transfer calculations and comparison with observations, molecular clouds, and line transfer calculations

Period	*Obligations*	
05/15/77-05/14/78	FY77: $10,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Petrosian, V.	ARC/Caroff, L. J. ARC/Erickson, E. F.	13-Physics

NCA 2-745716 **Stanford University** **1298**
Investigation of planetary search technique by infrared interferometry

Period	*Obligations*	
09/01/77-08/31/78	FY77: $15,983	TOTAL: $15,983
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bracewell, R. N.	ARC/Black, D. C.	11-Astronomy

NCA 2-745717 **Stanford University** **1299**
The catalytic activity of small platinum particles supported on single crystal aluminium oxide in low pressure reactions

Period	*Obligations*	
06/01/77-05/31/79	FY77: $7,387	TOTAL: $7,387
Prin Invest	*NASA Tech Officer*	*CASE Category*
Boudart, M.	ARC/Poppa, H. R.	13-Physics

NCA 2-745718 **Stanford University** **1300**
Numerical simulation of turbulent flows with a vortex-in-cell method

Period	*Obligations*	
07/01/77-09/30/77	FY77: $7,200	TOTAL: $7,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Buneman, O.	ARC/Leonard, A.	41-Aero Engr

NCA 2-745719 **Stanford University** **1301**
Bacterial denitrification as a model for mixed ecosystem studies

Period	*Obligations*	
06/01/77-05/31/78	FY77: $18,827	TOTAL: $18,827
Prin Invest	*NASA Tech Officer*	*CASE Category*
Matin, A	ARC/Hochstein, L. I.	51-Biology

NCA 2-745720 **Stanford University** **1302**
Dynamic simulation of truck/air cargo modal split

Period	*Obligations*	
07/01/77-12/31/77	FY77: $6,336	TOTAL: $6,336
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dajani, J. S.	ARC/Ardema, M. D.	44-Civil Engr

NGL 05-020-007 **Stanford University** **1303**
Guidance and control of flight vehicles

Period	*Obligations*	
08/17/72-08/14/80	FY77: $70,000	TOTAL: $1,361,064
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bryson, A. E., Jr Franklin, G. F.	ARC/Erzberger, H. ARC/Creer, B. Y.	49-Engr, NEC

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NGL 05-020-008 **Stanford University** **1304**
Investigation of experimental techniques for measurement of low frequency electromagnetic phenomena in the atmosphere

Period	*Obligations*	
09/01/61-02/29/80	FY77: $140,200	TOTAL: $1,434,443
Prin Invest	*NASA Tech Officer*	*CASE Category*
Helliwell, R. A.	HQ-ST/Cauffman, D. P. HQ-ST/Schmerling, E. R.	13-Physics

NGL 05-020-014 **Stanford University** **1305**
Theoretical & experimental radio and radar studies of lunar, planetary ionospheres, surface of sun and interplanetary medium

Period	*Obligations*	
04/30/63-09/30/79	FY77: $250,000	TOTAL: $2,908,574
Prin Invest	*NASA Tech Officer*	*CASE Category*
Eshleman, V. R.	HQ-SL/Fellows, R. F. HQ-ST/Schmerling, E. R.	31-Atmos Sci

NGL 05-020-103 **Stanford University** **1306**
Investigation of laser dynamics, modulation and control by means of intracavity time varying perturbation

Period	*Obligations*	
05/16/66-03/31/80	FY77: $70,352	TOTAL: $1,087,352
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harris, S. E. Siegman, A. E. Young, J. F.	HQ-RE/Catoe, C. E. GSFC/McElroy, J. H.	45-Elec Engr

NGL 05-020-176 **Stanford University** **1307**
Investigation of space-related whistler propagation phenomena in laboratory plasmas

Period	*Obligations*	
03/02/67-06/30/79	FY77: $100,000	TOTAL: $999,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Crawford, F. W.	HQ-ST/Cauffman, D. P. HQ-ST/Schmerling, E. R.	13-Physics

NGL 05-020-242 **Stanford University** **1308**
Research on the effects of structure upon the electronic behavior of materials

Period	*Obligations*	
03/26/68-01/31/77	FY77	TOTAL: $160,129
Prin Invest	*NASA Tech Officer*	*CASE Category*
Little, W. A.	HQ-RR/Randolph, L. P.	13-Physics

NGL 05-020-243 **Stanford University** **1309**
Refined methods of aeroelastic analysis and optimization

Period	*Obligations*	
08/14/67-08/31/79	FY77: $20,000	TOTAL: $130,630
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ashley, H.	ARC/Doggett, R. V., Jr.	41-Aero Engr

NGL 05-020-272 **Stanford University** **1310**
Theoretical study of the solar atmosphere and the structure of active regions

Period	Obligations	
06/07/68-09/30/77	FY77: $20,000	TOTAL: $725,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Sturrock, P. A.	HQ-ST/Timothy, A. F.	13-Physics

NGL 05-020-305 **Stanford University** **1311**
Evaluation of the cardiovascular system during various circulatory stresses

Period	Obligations	
09/17/68-12/01/79	FY77: $153,000	TOTAL: $1,229,032
Prin Invest	**NASA Tech Officer**	**CASE Category**
Harrison, D. C.	ARC/McCutcheon, E. P.	52-Clinical Med

NGL 05-020-397 **Stanford University** **1312**
Dynamics of mechanical systems coupled to energy sources

Period	Obligations	
02/04/70-09/30/77	FY77:	TOTAL: $40,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Herrmann, G.	LARC/Reed, W. H., III	41-Aero Engr

NGL 05-020-498 **Stanford University** **1313**
Modal suppression to flutter control

Period	Obligations	
04/01/71-04/01/77	FY77:	TOTAL: $120,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
McIntosh, S. C., Jr.	DFRC/Kordes, E. E.	41-Aero Engr

NGL 05-020-582 **Stanford University** **1314**
Abiotic origins of optical activity

Period	Obligations	
04/18/72-04/30/78	FY77: $31,382	TOTAL: $219,796
Prin Invest	**NASA Tech Officer**	**CASE Category**
Bonner, W. A.	HQ-SB/Young, R. S.	59-Life Sci, NEC

NGR 05-020-001 **Stanford University** **1315**
Ionospheric research utilizing satellite radio transmissions

Period	Obligations	
07/20/59-08/15/77	FY77: $46,705	TOTAL: $1,295,622
Prin Invest	**NASA Tech Officer**	**CASE Category**
DaRosa, A. V.	HQ-ST/Taylor, W. W.	13-Physics
	HQ-ST/Schmerling, E. R.	

NGR 05-020-004 **Stanford University** **1316**
Cytochemical studies of planetary microorganisms

Period	Obligations	
04/01/60-11/30/77	FY77: $137,500	TOTAL: $4,563,087
Prin Invest	**NASA Tech Officer**	**CASE Category**
Lederberg, J.	HQ-SB/Young, R. S	51-Biology
Levinthal, E. C.		

NGR 05-020-019 **Stanford University** **1317**
Performance of a gyro test of general relativity in a satellite & development of associated control technology

Period	Obligations	
10/11/75-02/14/77	FY77: $25,707	TOTAL: $3,677,182
Prin Invest	**NASA Tech Officer**	**CASE Category**
Fairbank, W. M.	MSFC/Potter, R. A.	13-Physics
Everitt, C. W.	MSFC/Decher, R.	
DeBra, D. B.		

NGR 05-020-345 **Stanford University** **1318**
Research in remote control

Period	Obligations	
06/09/69-12/31/77	FY77: $25,956	TOTAL: $181,741
Prin Invest	**NASA Tech Officer**	**CASE Category**
Thompson, D. A.	ARC/Jones, J. I	49-Engr, NEC
	ARC/Quattrone, P. D	

NGR 05-020-405 **Stanford University** **1319**
Electronic properties of hydrogen cyanide and its polymers of pyrroles and ferric porphyrins

Period	Obligations	
02/11/70-12/31/77	FY77: $13,500	TOTAL: $93,656
Prin Invest	**NASA Tech Officer**	**CASE Category**
Loew, G. H.	ARC/Chang, S.	12-Chemistry
	ARC/DeVincenzi, D.	

NGR 05-020-435 **Stanford University** **1320**
Neuronal analysis of visual perception

Period	Obligations	
01/01/70-09/30/78	FY77: $11,000	TOTAL: $47,845
Prin Invest	**NASA Tech Officer**	**CASE Category**
Chow, K. L.	ARC/Mehler, W. R.	59-Life Sci, NEC

NGR 05-020-452 **Stanford University** **1321**
Instrumentation study development for high energy physics experiment in space

Period	Obligations	
06/09/70-12/31/77	FY77: $403,000	TOTAL: $1,532,941
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hofstadter, R.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NGR 05-020-456 **Stanford University** **1322**
Effects of altered gravitational stress on fluid balance and circulation of blood

Period	Obligations	
05/13/70-12/31/77	FY77: $45,000	TOTAL: $302,090
Prin Invest	**NASA Tech Officer**	**CASE Category**
Luetscher, J. A.	ARC/Danellis, J. V	52-Clinical Med

NGR 05-020-559 **Stanford University** **1323**
Structure of solar magnetic and velocity fields

Period	Obligations	
03/22/72-09/30/77	FY77: $91,022	TOTAL: $457,022
Prin Invest	**NASA Tech Officer**	**CASE Category**
Wilcox, J. M.	HQ-ST/Timothy, A. F.	11-Astronomy

NGR 05-020-615 **Stanford University** **1324**
Ultrasonic Doppler measurement of renal artery blood flow

Period	*Obligations*	
05/26/72-11/30/77	FY77. $94,050	TOTAL $535,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beaver, W. L.	ARC/Sandler, H.	53-Other Medical

NGR 05-020-622 **Stanford University** **1325**
Computation of turbulent flows

Period	*Obligations*	
07/20/72-10/31/77	FY77. $100,436	TOTAL: $326,073
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reynolds, W. C.	ARC/Rubesin, M. W.	47-Materials Engr
Ferziger, J. H.	ARC/Lomax, H.	

NGR 05-020-634 **Stanford University** **1326**
Biomedical technology transfer

Period	*Obligations*	
12/07/72-12/31/77	FY77 $300,000	TOTAL: $953,503
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harrison, D. C.	ARC/Sandler, H	52-Clinical Med

NGR 05-020-649 **Stanford University** **1327**
Study of lunar and planetary surfaces

Period	*Obligations*	
03/06/73-12/31/77	FY77 $20,000	TOTAL: $87,170
Prin Invest	*NASA Tech Officer*	*CASE Category*
Howard, H T.	HQ-SL/Dwornik, S. E.	32 Geological Sci
	HQ-SL/Wahmann, R.	

NGR 05-020-668 **Stanford University** **1328**
Magnetosphere structure and radiation mechanisms on pulsars

Period	*Obligations*	
11/01/73-10/31/77	FY77. $25,000	TOTAL $98,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sturrock, P A.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NGR 05-020-671 **Stanford University** **1329**
Mechanical behavior of dispersion-strengthened materials at elevated temperatures

Period	*Obligations*	
06/05/73-12/31/76	FY77.	TOTAL: $64,259
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sherby, O. D.	LERC/Whittenberger, J D	47-Materials Engr

NGR 05-020-690 **Stanford University** **1330**
Miniature gas analysis systems

Period	*Obligations*	
09/01/73-11/30/77	FY77 $40,000	TOTAL $192,632
Prin Invest	*NASA Tech Officer*	*CASE Category*
Angell, J.	ARC/Sandler, H	53-Other Medical
	ARC/Donaldson, R	

NGR 05-020-710 **Stanford University** **1331**
Interaction of coatings w/heating environments

Period	*Obligations*	
01/01/74-12/31/77	FY77 $45,067	TOTAL $157,695
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bates, C.	ARC/Goldstein, H. E.	46-Mech Engr
	ARC/Larson, H. K.	

NGT 05-020-409 **Stanford University** **1332**
Summer faculty fellowship program in engineering systems design

Period	*Obligations*	
12/18/69-03/31/78	FY77. $108,820	TOTAL. $907,206
Prin Invest	*NASA Tech Officer*	*CASE Category*
Adams, J. L.	HQ-P/Carter, C. H.	49-Engr, NEC

NGT 05-020-412 **Stanford University** **1333**
A summer program of NASA summer faculty fellowships

Period	*Obligations*	
12/16/69-03/31/78	FY77. $139,769	TOTAL $1,105,670
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bershader, D	HQ-P/Carter, C. H.	49-Engr, NEC

NGT 05-020-777 **Stanford University** **1334**
Support of specialized post-MD training in aerospace medicine

Period	*Obligations*	
07/01/76-06/30/78	FY77. $48,376	TOTAL $98,269
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beard, R. R.	HQ-P/Carter, C H	59-Life Sci, NEC

NSG 1201 **Stanford University** **1335**
Fundamental materials studies directed at improving the efficiencies of III-V heterojunction solar cells

Period	*Obligations*	
06/03/75-06/02/78	FY77 $33,000	TOTAL $96,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pearson, G L.	LARC/Hutchby, J A	13-Physics
	LARC/Hendricks, H D.	

NSG 1345 **Stanford University** **1336**
Reactive ablation of molybdenum by oxygen atoms

Period	*Obligations*	
10/01/76-12/31/77	FY77 $25,000	TOTAL. $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Madix, R J	LARC/Outlaw, R. A	47-Materials Engr
	LARC/Melfi, L. T., Jr	

NSG 1381 **Stanford University** **1337**
The collision dynamics and energetics of hyperthermal reactive gases with chemical species absorbed on catalytic metal surfaces

Period	*Obligations*	
01/17/77-01/16/78	FY77. $17,500	TOTAL $17,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Madix, R J.	LARC/Outlaw, R A	47-Materials Engr
	LARC/Melfi, L T., Jr	

NSG 1410 **Stanford University** **1338**
Critical fault pattern determination in fault tolerant computer systems

Period	Obligations	
04/01/77-12/31/77	FY77: $25,011	TOTAL: $25,011
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCluskey, E. J.	LARC/Bavuso, S. J. LARC/Lupton, A. O.	45-Elec Engr

NSG 1443 **Stanford University** **1339**
Generalized eigenvalue problem

Period	Obligations	
10/01/77-12/31/77	FY77: $26,095	TOTAL: $26,095
Prin Invest	*NASA Tech Officer*	*CASE Category*
Golub, G. H. Wilkinson, J. H.	LARC/Shoosmith, J. N.	21-Mathematics

NSG 2007 **Stanford University** **1340**
Some experimental studies relating to airfoil noise

Period	Obligations	
01/15/74-08/14/78	FY77: $173,966	TOTAL: $996,406
Prin Invest	*NASA Tech Officer*	*CASE Category*
Karamcheti, K. Baganoff, D. Koutsoyannis, S. P.	ARC/Aiken, T. N.	19-Phys Sci, NEC

NSG 2020 **Stanford University** **1341**
Remote monitoring of physiologic effects of simulated space flight

Period	Obligations	
04/01/74-09/30/78	FY77:	TOTAL: $149,950
Prin Invest	*NASA Tech Officer*	*CASE Category*
Popp, R. L.	ARC/Sandler, H.	52-Clinical Med

NSG 2050 **Stanford University** **1342**
Supersonic CO electric-discharge lasers

Period	Obligations	
10/29/74-10/01/77	FY77: $5,099	TOTAL: $75,444
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hanson, R. K. Mitchner, M.	ARC/McKenzie, R. L.	13-Physics

NSG 2072 **Stanford University** **1343**
Numerical analysis of general circulation of stratosphere

Period	Obligations	
06/15/75-10/01/77	FY77:	TOTAL: $72,458
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spreiter, J. R.	ARC/Reynolds, R. T.	31-Atmos Sci

NSG 2085 **Stanford University** **1344**
Aerothermodynamic heat-shield environments

Period	Obligations	
09/15/75-09/14/78	FY77: $83,318	TOTAL: $134,098
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bershader, D.	ARC/Howe, J. T. ARC/Park, C.	42-Astro Engr

NSG 2092 **Stanford University** **1345**
In vivo determination of bone properties from mechanical measurements

Period	Obligations	
07/01/75-12/31/77	FY77: $23,930	TOTAL: $52,967
Prin Invest	*NASA Tech Officer*	*CASE Category*
Steele, C. R.	ARC/Young, D. R.	53-Other Medical

NSG 2100 **Stanford University** **1346**
Control methods for aiding a pilot during STOL engine-out transients

Period	Obligations	
08/01/75-07/31/78	FY77: $20,000	TOTAL: $57,868
Prin Invest	*NASA Tech Officer*	*CASE Category*
DeBra, D. B.	ARC/Franklin, J. A.	41-Aero Engr

NSG 2102 **Stanford University** **1347**
Effects of wavelength, temperature, structure and impurities in subliming volume reflectors in convective and intense radiative environments

Period	Obligations	
09/15/75-09/14/77	FY77:	TOTAL: $44,176
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bates, C. W.	ARC/Nachtsheim, P. R.	47-Materials Engr

NSG 2121 **Stanford University** **1348**
Preliminary design and computer simulation of a very large Fourier transform processor for the interstellar search system

Period	Obligations	
01/01/76-03/31/78	FY77: $25,334	TOTAL: $54,371
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peterson, A. M. Teague, C. C	ARC/Billingham, J.	49-Engr, NEC

NSG 2132 **Stanford University** **1349**
Study of lower body negative pressure

Period	Obligations	
02/01/76-12/31/77	FY77:	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harrison, D. C.	ARC/Sandler, H.	52-Clinical Med

NSG 2141 **Stanford University** **1350**
Effects of bedrest and inactivity on insulin binding to receptors and insulin action

Period	Obligations	
04/01/76-04/30/78	FY77: $27,228	TOTAL: $41,939
Prin Invest	*NASA Tech Officer*	*CASE Category*
Olefsky, J. M.	ARC/Dolkas, C. B.	52-Clinical Med

NSG 2166 **Stanford University** **1351**
Thermal protection material evaluation and diagnostic study of advanced high-power arc jets for planetary entry simulation

Period	Obligations	
07/01/76-06/30/78	FY77: $57,368	TOTAL: $108,303
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baganoff, D. Liu, G.	ARC/Nachtsheim, P. R.	42-Astro Engr

NSG 2190 **Stanford University** **1352**
Evaluation of the weight and aerodynamics methodology of the general aviation synthesis program for application to moderate size short haul transport aircraft

Period	Obligations	
11/01/76-10/31/77	FY77: $19,728	TOTAL: $19,728
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shevell, R. S.	ARC/Galloway, T. L. ARC/Schairer, E. T.	41-Aero Engr

NSG 2202 **Stanford University** **1353**
The determinants of technological innovation

Period	Obligations	
01/01/77-12/31/77	FY77: $21,619	TOTAL: $21,619
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rosenberg, N Hickman, B.	ARC/Hornby, H.	72-Economics

NSG 2203 **Stanford University** **1354**
Air cargo in an integrated transportation

Period	Obligations	
02/01/77-12/01/77	FY77: $25,964	TOTAL: $25,964
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dajani, J. S	ARC/Belsley, S. ARC/Waters, M. H.	41-Aero Engr

NSG 2214 **Stanford University** **1355**
Development of ultrasonic indices for space shuttle

Period	Obligations	
04/01/77-03/31/78	FY77: $40,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Popp, R. L	ARC/Sandler, H.	45-Elec Engr

NSG 2215 **Stanford University** **1356**
Studies of the effects of forward flight on aircraft noise and its simulation

Period	Obligations	
03/01/77-02/28/80	FY77: $309,003	TOTAL: $309,003
Prin Invest	*NASA Tech Officer*	*CASE Category*
Karamcheti, K. Ayoub, A. Koutsoyannis, S. P	ARC/Ahtye, W. F. ARC/Falarski, M. D.	19-Phys Sci, NEC

NSG 2233 **Stanford University** **1357**
Experimental studies relating to airfoil unsteady aerodynamics

Period	Obligations	
03/01/77-02/28/78	FY77: $45,000	TOTAL: $45,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Karamcheti, K	ARC/Davis, S. S.	41-Aero Engr

NSG 2246 **Stanford University** **1358**
Spacelab infrared telescope pointing and control system

Period	Obligations	
07/01/77-09/30/78	FY77: $43,106	TOTAL: $43,106
Prin Invest	*NASA Tech Officer*	*CASE Category*
Powell, J. D	ARC/Lorell, K. R. ARC/Young, L.	49-Engr, NEC

NSG 2249 **Stanford University** **1359**
High-resolution transmission electron microscope studies of small metal crystallites and surfaces

Period	Obligations	
10/01/77-03/31/78	FY77: $14,537	TOTAL: $14,537
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pound, G. M Heinemann, K. W.	ARC/Poppa, H. R.	13-Physics

NSG 2250 **Stanford University** **1360**
Multi-calculation rate simulations

Period	Obligations	
07/01/77-09/30/77	FY77: $9,903	TOTAL: $9,903
Prin Invest	*NASA Tech Officer*	*CASE Category*
Powell, J. D.	ARC/Cleveland, W. B. ARC/Chin, D. O.	41-Aero Engr

NSG 2251 **Stanford University** **1361**
Theoretical study of carbon monoxide molecule chemisorbed on iron and platinum surfaces

Period	Obligations	
09/15/77-03/14/78	FY77: $18,570	TOTAL: $18,570
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pound, G. M.	ARC/Arnold, J. O.	47-Materials Engr

NSG 2254 **Stanford University** **1362**
Stanford/Ames Joint Institute for Aeronautics and Acoustics
Helicopter noise detection study

Period	Obligations	
07/01/77-12/31/77	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Karamcheti, K Ahumada, A. J. Hersh, S.	ARC/Schmitz, F. H. ARC/Boxwell, D. A.	39-Env Sci, NEC

NSG 2255 **Stanford University** **1363**
Analytical investigation of the flow field around a rotor blade

Period	Obligations	
07/15/77-10/14/77	FY77: $12,000	TOTAL: $12,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Karamcheti, K Mehta, U. B	ARC/Peterson, V. L. ARC/Lomax, H.	41-Aero Engr

NSG 2258 **Stanford University** **1364**
Fundamental studies of unsteady turbulent boundary layers

Period	Obligations	
09/01/77-05/31/78	FY77: $50,000	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reynolds, W. C Parikh, P	ARC/McCroskey, W. J. ARC/Carr, L. W.	41-Aero Engr

NSG 3124 **Stanford University** **1365**
Heat transfer and hydrodynamic studies on a curved surface with full-coverage film cooling

Period	Obligations	
10/01/76-10/31/77	FY77:	TOTAL: $64,830
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kays, W. M.	LERC/Gaugler, R. G.	46-Mech Engr
Moffat, R. J.		
Johnston, J. P.		

NSG 4002 **Stanford University** **1366**
Theoretical and experimental investigations in the control of aircraft

Period	Obligations	
09/01/74-08/31/78	FY77: $70,000	TOTAL: $260,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
DeBra, D. B.	DFRC/Edwards, J. W.	41-Aero Engr
Ashley, H.		
Bryson, A. E., Jr.		

NSG 5131 **Stanford University** **1367**
Spectroscopy of cosmic X-ray sources of the solar corona

Period	Obligations	
11/15/76-11/30/77	FY77: $185,000	TOTAL: $185,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, A. B., Jr.	GSFC/Bissell, E. E.	13-Physics
Stern, R. A.	HQ-ST/Timothy, A. F.	

NSG 5132 **Stanford University** **1368**
Research of elastically bent glass strips to produce high resolution X-ray and extreme ultraviolet optics

Period	Obligations	
10/15/76-01/15/78	FY77: $57,000	TOTAL: $57,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, A. B., Jr.	GSFC/Mangus, J. D.	19-Phys Sci, NEC
Underwood, J. H	GSFC/Osantowski, J. F	

NSG 7029 **Stanford University** **1369**
Radar data from the moon

Period	Obligations	
04/01/74-12/31/77	FY77:	TOTAL: $201,266
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tyler, G. L.	HQ-SL/Goldstein, B. E.	32-Geological Sci

NSG 7092 **Stanford University** **1370**
Energy release in solar flares based on OSO-5

Period	Obligations	
10/01/74-09/30/77	FY77: $40,000	TOTAL: $130,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sturrock, P. A.	HQ-ST/Timothy, A. F.	11-Astronomy

NSG 7110 **Stanford University** **1371**
Investigation of laser particle accelerators

Period	Obligations	
02/06/75-12/31/77	FY77: $50,000	TOTAL: $150,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pantell, R. H.	HQ-RR/Thom, K.	13-Physics
Piestrup, M. A.	ARC/Billman, K. W.	

NSG 7117 **Stanford University** **1372**
A study of seismic velocity electrical conductivity and the state of the lunar crust

Period	Obligations	
03/01/75-02/28/77	FY77:	TOTAL: $76,520
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nur, A. M.	HQ-SL/Williams, R. J.	32-Geological Sci
	HQ-SL/Flinn, E. A.	

NSG 7204 **Stanford University** **1373**
Theoretical analyses of relativistic gravitational experiments

Period	Obligations	
10/01/75-09/30/77	FY77: $15,215	TOTAL: $31,215
Prin Invest	*NASA Tech Officer*	*CASE Category*
Will, C. M.	HQ-SA/Roman, N. G.	11-Astronomy
	HQ-SA/Rosendhal, J. D.	

NAS 5-20079 **University of California - Berkeley** **1374**
Energetic particles flux experiment for International Sun-Earth Explorer mother & daughter spacecraft

Period	Obligations	
05/23/74-10/30/79	FY77: $188,938	TOTAL: $1,098,090
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, K. A.	GSFC/Davis, M. A.	13-Physics

NAS 5-20080 **University of California - Berkeley** **1375**
Quasi-electric fields experiment for ISEE mother/daughter spacecraft

Period	Obligations	
05/21/74-10/30/79	FY77: $200,000	TOTAL: $740,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mozer, F. S.	GSFC/Davis, M. A.	13-Physics

NAS 5-20969 **University of California - Berkeley** **1376**
ERTS data follow-on investigation

Period	Obligations	
04/15/75-08/14/77	FY77:	TOTAL: $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Colwell, R.	GSFC/Stonesifer, G. R.	32-Geological Sci

NAS 5-20995 **University of California - Berkeley** **1377**
Isotopic composition of primary cosmic rays H thru FE for ISEE-C spacecraft

Period	Obligations	
03/19/75-07/30/80	FY77: $313,000	TOTAL: $1,277,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Heckman, H. H.	GSFC/Gallagher, W. F.	13-Physics
	GSFC/Davis, M. A.	

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NAS 5-22307 **University of California - Berkeley** **1378**
Solar X-ray and interplanetary and solar electrons for the ISEE-C spacecraft

Period	Obligations	
04/11/75-07/30/80	FY77: $226,000	TOTAL: $1,083,000

Prin Invest	NASA Tech Officer	CASE Category
Anderson, K. A.	GSFC/Davis, M. A. GSFC/Gallagher, W. F.	32-Geological Sci

NAS 5-23697 **University of California - Berkeley** **1379**
Interface definition study of ultraviolet imaging telescope

Period	Obligations	
08/26/76-12/18/76	FY77:	TOTAL: $30,354

Prin Invest	NASA Tech Officer	CASE Category
Bowyer, C. S.	GSFC/Weinreb, M. R.	11-Astronomy

NAS 5-24105 **University of California - Berkeley** **1380**
Cosmic background Explorer satellite mission definition study

Period	Obligations	
11/01/76-12/31/77	FY77: $18,000	TOTAL: $18,000

Prin Invest	NASA Tech Officer	CASE Category
Alvarez, L. W. Smoot, G.	GSFC/Mather, J. C GSFC/Muller, R.	11-Astronomy

NAS 5-24165 **University of California - Berkeley** **1381**
Experiment definition and integration study for accommodation of magnetic spectrometer payload on spacelab/shuttle missions

Period	Obligations	
06/13/77-02/12/78	FY77: $32,457	TOTAL: $32,457

Prin Invest	NASA Tech Officer	CASE Category
Buffington, A.	GSFC/Barrowman, J. S	13-Physics

NAS 5-24166 **University of California - Berkeley** **1382**
Experiment definition and integration study for accommodation of giant passive detector of exotic particles in cosmic rays on shuttle/spacelab missions

Period	Obligations	
06/06/77-02/05/78	FY77 $29,284	TOTAL: $29,284

Prin Invest	NASA Tech Officer	CASE Category
Price, P. B. Shirk, E. K. Weitzmann, R.	GSFC/Barrowman, J. S.	13-Physics

NAS 5-24189 **University of California - Berkeley** **1383**
Study the feasibility of developing three telescopes in the 100-1000A range

Period	Obligations	
07/19/77-02/19/78	FY77. $44,732	TOTAL. $44,732

Prin Invest	NASA Tech Officer	CASE Category
Bowyer, C. S. Lampton, M. Paresce, F.	GSFC/Willis, S. F. GSFC/Townsend, M. R.	11-Astronomy

NAS 8-29603 **University of California - Berkeley** **1384**
Transuranic cosmic ray flight experiment

Period	Obligations	
03/13/73-11/01/77	FY77.	TOTAL: $300,738

Prin Invest	NASA Tech Officer	CASE Category
Price, P. B.	MSFC/Ondrak, B. T	13-Physics

NAS 8-31346 **University of California - Berkeley** **1385**
Feasibility of coherent and incoherent backscatter experiments from the AMPS

Period	Obligations	
03/01/75-12/21/76	FY77:	TOTAL: $30,000

Prin Invest	NASA Tech Officer	CASE Category
Mozel, F. S.	MSFC/Roberts, W. T. MSFC/Chappell, C. R.	19-Phys Sci, NEC

NAS 8-32577 **University of California - Berkeley** **1386**
Spacelab mission 1 exp 95 far UV observations using the Faust instrument on the first spacelab mission

Period	Obligations	
05/10/77-10/09/77	FY77: $54,818	TOTAL: $54,818

Prin Invest	NASA Tech Officer	CASE Category
Bowyer, S.	MSFC/Jex, D.	11-Astronomy

NAS 9-14565 **University of California - Berkeley** **1387**
Study development of improved photointerpretative techniques to wheat identification

Period	Obligations	
05/15/75-11/14/77	FY77. $366,203	TOTAL. $621,203

Prin Invest	NASA Tech Officer	CASE Category
Nichols, J. D	JSC/Garcia, J. G.	39-Env Sci, NEC

NCA 2-50607 **University of California - Berkeley** **1388**
Utilization of light energy by halobacterium halobium

Period	Obligations	
06/01/76-08/31/77	FY77 $1,850	TOTAL. $9,250

Prin Invest	NASA Tech Officer	CASE Category
Packer, L.	ARC/Lanyi, J. K.	51-Biology

NCA 2-50702 **University of California - Berkeley** **1389**
Aerosol effects on atmospheric heating and the utility of SETI systems for radioastronomy

Period	Obligations	
11/01/76-12/31/77	FY77 $20,000	TOTAL $20,000

Prin Invest	NASA Tech Officer	CASE Category
Welch, W. J.	ARC/Pollack, J. B ARC/Billingham, J	11-Astronomy

NCA 2-50703 **University of California - Berkeley** **1390**
Proteolytic conversions of pituitary growth hormones

Period	Obligations	
02/01/77-01/31/79	FY77 $16,250	TOTAL $16,250

Prin Invest	NASA Tech Officer	CASE Category
Nicholl, C.	ARC/Ellis, S	53-Other Medical

NCA 2-50704 **University of California - Berkeley** **1391**
Microwave systems for in-situ measurement of wetness of snow and earth

Period	*Obligations*	
01/10/77-01/09/79	FY77: $10,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Angelakos, D. J.	ARC/Linlor, W. I.	39-Env Sci, NEC

NCA 2-50705 **University of California - Berkeley** **1392**
High resolution surface analysis for materials science studies

Period	*Obligations*	
05/01/77-04/30/78	FY77: $10,450	TOTAL: $10,450
Prin Invest	*NASA Tech Officer*	*CASE Category*
Everhart, T. E.	ARC/Poppa, H. R	13-Physics

NCA 2-50706 **University of California - Berkeley** **1393**
Compilation of stability field diagrams for structural steels in multicomponent gases

Period	*Obligations*	
05/01/77-11/01/77	FY77: $4,000	TOTAL: $4,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Finnie, I.	ARC/Nelson, H. G.	47-Materials Engr

NCA 2-50707 **University of California - Berkeley** **1394**
Laser-induced coherent interactions

Period	*Obligations*	
05/01/77-01/31/78	FY77 $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gustafson, T. K. Gower, M. C.	ARC/Billman, K. W.	12-Chemistry

NCA 2-50710 **University of California - Berkeley** **1395**
On the modelling of extraterrestrial ecosystems

Period	*Obligations*	
09/15/77-09/14/79	FY77 $18,610	TOTAL: $18,610
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spear, R Auslander, D.	ARC/MacElroy, R. D.	59-Life Sci, NEC

NGL 05-003-003 **University of California - Berkeley** **1396**
Study of extraterrestrial life using reflection spectra as a basis

Period	*Obligations*	
08/01/60-10/31/79	FY77: $180,000	TOTAL: $3,758,081
Prin Invest	*NASA Tech Officer*	*CASE Category*
Calvin, M Weaver, H. Burlingame, A. L.	HQ-SB/Young, R. S	32-Geological Sci

NGL 05-003-017 **University of California - Berkeley** **1397**
Investigation of high energy solar flare radiation & trapped radiation, including balloon-borne & sounding rocket tests of prototype detectors

Period	*Obligations*	
04/08/63-01/31/80	FY77 $110,000	TOTAL: $1,872,942
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, K. A.	HQ-ST/Schmerling, E. R. HQ-ST/Taylor, W. W	19-Phys Sci, NEC

NGL 05-003-272 **University of California - Berkeley** **1398**
Research on radiation physics

Period	*Obligations*	
03/01/68-02/28/80	FY77: $106,159	TOTAL: $1,032,539
Prin Invest	*NASA Tech Officer*	*CASE Category*
Townes, C. H.	HQ-SA/Boggess, N. W. HQ-SA/Roman, N. G	11-Astronomy

NGL 05-003-286 **University of California - Berkeley** **1399**
Orbiting spacecraft infrared spectrometer development for terrestrial and laboratory study of planetary atmospheres

Period	*Obligations*	
08/08/68-08/31/79	FY77: $76,609	TOTAL: $1,004,004
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pimental, G. C.	HQ-SL/Fellows, R. F HQ-SL/Brunk, W. E.	31-Atmos Sci

NGL 05-003-404 **University of California - Berkeley** **1400**
Integrated study of earth resources in the State of California using remote sensing techniques

Period	*Obligations*	
07/13/70-04/30/79	FY77 $143,000	TOTAL: $4,053,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Colewell, R. N	HQ-P/Vitale, J. A ARC/Arno, R. D.	39-Env Sci, NEC

NGL 05-003-409 **University of California - Berkeley** **1401**
Lunar sample analysis

Period	*Obligations*	
01/26/71-01/31/80	FY77 $131,287	TOTAL: $760,370
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reynolds, J. H.	JSC/Harris, J. W	13-Physics

NGL 05-003-410 **University of California - Berkeley** **1402**
Lunar sample analysis

Period	*Obligations*	
02/22/71-01/31/79	FY77:	TOTAL: $724,795
Prin Invest	*NASA Tech Officer*	*CASE Category*
Price, P. B.	JSC/Harris, J. W.	12-Chemistry

NGL 05-003-497 **University of California - Berkeley** **1403**
Research in space sciences

Period	*Obligations*	
04/05/72-03/31/80	FY77 $300,000	TOTAL: $1,300,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, K. A.	HQ-P/Carter, C. H	99-Multi-Discip

NGR 05-003-239 **University of California - Berkeley** **1404**
Auroral zone rocket studies of electric fields and precipitating particles

Period	*Obligations*	
08/26/68-11/30/77	FY77 $159,000	TOTAL: $977,811
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moser, F. S Anderson, K. A.	GSFC/Bissell, F. F HQ-SP/Schmerling, E. R	13-Physics

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NGR 05-003-376 University of California - Berkeley **1405**
High resolution studies of cosmic rays and solar particles

Period	Obligations	
04/16/71-11/01/77	FY77: $90,000	TOTAL: $518,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Price, P. B.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G	11-Astronomy

NGR 05-003-450 University of California - Berkeley **1406**
Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths

Period	Obligations	
05/28/71-03/31/78	FY77: $132,000	TOTAL: $873,203
Prin Invest	**NASA Tech Officer**	**CASE Category**
Bowyer, C. S	GSFC/Bissell, E. E. HQ-SA/Opp, A. G.	11-Astronomy

NGR 05-003-451 University of California - Berkeley **1407**
Research in aeronautics & air transportation

Period	Obligations	
03/30/71-03/14/79	FY77: $88,457	TOTAL: $488,850
Prin Invest	**NASA Tech Officer**	**CASE Category**
Holt, M. Talbot, L.	ARC/Chapman, G. T.	41-Aero Engr

NGR 05-003-452 University of California - Berkeley **1408**
Infrared spectra of planetary atmospheres

Period	Obligations	
02/18/72-06/30/78	FY77: $50,175	TOTAL: $265,340
Prin Invest	**NASA Tech Officer**	**CASE Category**
Townes, C. H	HQ-SL/Brunk, W. E. HQ-SL/Quinde, W. L.	11-Astronomy

NGR 05-003-460 University of California - Berkeley **1409**
The chemistry of living systems

Period	Obligations	
07/21/71-10/31/77	FY77: $75,000	TOTAL: $493,750
Prin Invest	**NASA Tech Officer**	**CASE Category**
Jukes, J. H.	HQ-SB/Young, R. S	12-Chemistry

NGR 05-003-471 University of California - Berkeley **1410**
Sociopolitical assessment of advanced technology

Period	Obligations	
05/21/71-12/01/77	FY77: $25,272	TOTAL: $308,336
Prin Invest	**NASA Tech Officer**	**CASE Category**
LaPorte, T. R.	ARC/Tanner, T. A. Jr.	79-Soc Sci, NEC

NGR 05-003-511 University of California - Berkeley **1411**
Spectrographic observation of infrared lines

Period	Obligations	
03/01/73-08/31/78	FY77: $40,017	TOTAL: $245,022
Prin Invest	**NASA Tech Officer**	**CASE Category**
Townes, C. H.	ARC/Gillespie, C. M., Jr ARC/Cameron, R. M	11-Astronomy

NGR 05-003-513 University of California - Berkeley **1412**
Heavy ion fragment experiments at the bevatron

Period	Obligations	
10/01/73-09/30/77	FY77: $120,000	TOTAL: $495,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Heckman, H. H	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NGR 05-003-553 University of California - Berkeley **1413**
High energy primary cosmic radiation measured by superconducting magnetic spectrometer

Period	Obligations	
05/10/73-12/31/77	FY77 $250,000	TOTAL: $1,300,164
Prin Invest	**NASA Tech Officer**	**CASE Category**
Alvarez, L. W.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NGR 05-003-562 University of California - Berkeley **1414**
Research on iron base alloys with superior strength and fracture toughness for use at cryogenic temperatures

Period	Obligations	
08/15/73-10/15/77	FY77: $25,921	TOTAL: $122,184
Prin Invest	**NASA Tech Officer**	**CASE Category**
Morris, J. W.	LERC/Stephens, J. R.	47-Materials Engr

NGR 05-003-578 University of California - Berkeley **1415**
Theoretical X-ray and gamma-ray astronomy

Period	Obligations	
08/01/73-08/31/78	FY77: $62,000	TOTAL: $153,...
Prin Invest	**NASA Tech Officer**	**CASE Category**
Silk, J. I.	HQ-SA/Roman, N. G. HQ-SA/Rosendhal, J. D.	11-Astronomy

NSG 1347 University of California - Berkeley **1416**
Oxidation of noble metals and oxidation catalysis

Period	Obligations	
10/15/76-10/14/77	FY77 $25,000	TOTAL: $25,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Peterson, I.	LARC/Outlaw, R. A. LARC/Melfi, L. T., Jr	47-Materials Engr

NSG 2003 University of California - Berkeley **1417**
Remote sensing and large-scale movements of nuisance algal blooms in eutrophic water bodies

Period	Obligations	
01/15/74-09/30/77	FY77	TOTAL: $54,503
Prin Invest	**NASA Tech Officer**	**CASE Category**
Horne, A. J.	ARC/Wrigley, R. C.	39-Env Sci, NEC

NSG 2026 University of California - Berkeley **1418**
Fire testing of aircraft interiors

Period	Obligations	
05/01/74-09/30/77	FY77 $41,900	TOTAL: $218,400
Prin Invest	**NASA Tech Officer**	**CASE Category**
Williamson, R. B.	ARC/Kourtides, D. A.	44-Civil Engr

NSG 2043 **University of California - Berkeley** **1419**
Preparation of composite reverse osmosis membranes by plasma polymerization

Period	Obligations	
10/01/74-09/30/77	FY77: $15,000	TOTAL $45,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bell, A. T.	ARC/Wydeven, T. J.	43-Chem Engr

NSG 2084 **University of California - Berkeley** **1420**
Study of the thermal degradation of polymers under laser simulated environments

Period	Obligations	
06/09/75-11/01/77	FY77 $23,500	TOTAL: $46,681
Prin Invest	*NASA Tech Officer*	*CASE Category*
Williamson, R. B.	ARC/Caghostro, D. E. ARC/Riccitiello, S. R.	12-Chemistry

NSG 2110 **University of California - Berkeley** **1421**
Towing of aircraft models

Period	Obligations	
10/01/75-12/31/77	FY77: $18,344	TOTAL: $34,344
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wehausen, J. V.	ARC/Ciffone, D. L ARC/Kelly, M. W	41-Aero Engr

NSG 2125 **University of California - Berkeley** **1422**
Aether drift and the isotropy of the universe

Period	Obligations	
10/01/75-12/31/77	FY77 $47,953	TOTAL: $109,842
Prin Invest	*NASA Tech Officer*	*CASE Category*
Muller, R. A.	ARC/Gillespie, C. M., Jr ARC/Cameron, R. M.	11-Astronomy

NSG 2127 **University of California - Berkeley** **1423**
An investigation of sources of information on short haul air passengers

Period	Obligations	
01/01/76-12/31/77	FY77: $20,000	TOTAL: $53,048
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kanafani, A.	ARC/Waters, M. H	41-Aero Engr

NSG 2151 **University of California - Berkeley** **1424**
Infrared and optical tunneling junctions

Period	Obligations	
05/01/76-04/30/78	FY77: $50,927	TOTAL: $90,427
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gustafson, T. K.	ARC/Billman, K. W.	13-Physics

NSG 2207 **University of California - Berkeley** **1425**
Determining the usefulness of remote sensing for estimating agricultural water demand in California

Period	Obligations	
01/01/77-12/31/77	FY77: $85,000	TOTAL: $85,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Colwell, R. N. Estes, J Wall, S.	ARC/Evans, L. C ARC/Padrick, B. D.	39-Env Sci, NEC

NSG 2211 **University of California - Berkeley** **1426**
Millimeter wavelength observations of the planets

Period	Obligations	
11/01/76-10/31/78	FY77: $7,351	TOTAL: $7,351
Prin Invest	*NASA Tech Officer*	*CASE Category*
Welch, W. J.	ARC/Pollack, J. B	11-Astronomy

NSG 2242 **University of California - Berkeley** **1427**
Encounter between aircraft: A study of evasion

Period	Obligations	
06/15/77-12/15/77	FY77: $9,967	TOTAL $9,967
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leitmann, G.	ARC/Ardema, M. D	41-Aero Engr

NSG 2243 **University of California - Berkeley** **1428**
User-driven remote sensing application Dynamics of the Pacific Northwest

Period	Obligations	
06/01/77-11/30/77	FY77 $23,260	TOTAL: $23,260
Prin Invest	*NASA Tech Officer*	*CASE Category*
Colwell, R. A.	ARC/Padrick, B. D	19-Phys Sci, NEC

NSG 3028 **University of California - Berkeley** **1429**
Techniques for stabilization of lean combustion systems

Period	Obligations	
07/01/74-10/31/78	FY77: $85,000	TOTAL $337,182
Prin Invest	*NASA Tech Officer*	*CASE Category*
Daily, J. W Oppenheim, A. K. Sawyer, R. F	LERC/Marek, C. J LERC/Diehl, L. A.	46-Mech Engr

NSG 5057 **University of California - Berkeley** **1430**
X-ray observations of lacertids from OAO Copernicus

Period	Obligations	
03/01/75-02/29/76	FY77	TOTAL: $8,505
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bowyer, C. S.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5093 **University of California - Berkeley** **1431**
Microwave scattering properties of snow fields

Period	Obligations	
02/01/76-01/31/78	FY77: $30,000	TOTAL: $61,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Angelakos, D. J.	GSFC/Chang, A. T	49-Engr, NEC

NSG 5114 **University of California - Berkeley** **1432**
Simultaneous X-ray, optical and ultraviolet observations of X Persei

Period	Obligations	
06/01/76-05/31/77	FY77	TOTAL: $10,454
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bowyer, C. S.	GSFC/Kupperian, J. E., Jr	11-Astronomy

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NSG 5164 **University of California - Berkeley** **1433**
Simultaneous X-ray and optical observations of the 'SCO-X-1 like' X-ray sources

Period 03/14/77-03/13/78 *Obligations* FY77: $9,913 TOTAL: $9,913
Prin Invest Bowyer, C. S. *NASA Tech Officer* GSFC/Kupperian, J. E., Jr. *CASE Category* 11-Astronomy

NSG 5201 **University of California - Berkeley** **1434**
Theoretical studies in space astronomy

Period 09/01/77-08/31/78 *Obligations* FY77: $1,496 TOTAL: $1,496
Prin Invest Shull, J. M. *NASA Tech Officer* GSFC/Kupperian, J. E., Jr. *CASE Category* 11-Astronomy

NSG 7127 **University of California - Berkeley** **1435**
Map lunar surface remanent magnetic fields and to develop the theory of solar winds cavity

Period 03/25/75-02/28/78 *Obligations* FY77: $27,371 TOTAL: $160,516
Prin Invest Anderson, K. A. *NASA Tech Officer* HQ-SL/Goldstein, B. E. *CASE Category*
HQ-SL/Quaide, W. L. 39-Env Sci, NEC

NSG 7139 **University of California - Berkeley** **1436**
Pulse resolved spectrophotometry of Hercules

Period 05/01/75-04/30/76 *Obligations* FY77 TOTAL: $4,340
Prin Invest Bowyer, C. S. *NASA Tech Officer* HQ-SA/Rosendhal, J. D. *CASE Category* 11-Astronomy
HQ-SA/Roman, N. G.

NSG 7152 **University of California - Berkeley** **1437**
Studies of solar system objects with the new hat creek millimeter wavelength radio interferometer

Period 07/01/75-10/31/77 *Obligations* FY77 TOTAL: $75,466
Prin Invest Silver, S. *NASA Tech Officer* HQ-SL/Brunk, W. E. *CASE Category* 11-Astronomy

NSG 7205 **University of California - Berkeley** **1438**
Far infrared all-sky survey

Period 02/01/76-04/15/78 *Obligations* FY77: $30,000 TOTAL: $90,000
Prin Invest Richards, P. L. *NASA Tech Officer* HQ-SA/Boggess, N. W. *CASE Category* 11-Astronomy
HQ-SA/Roman, N. G.

NSG 7220 **University of California - Berkeley** **1439**
Remote sensing to selected problems within the State of California

Period 05/01/76-04/30/80 *Obligations* FY77: $245,000 TOTAL: $335,000
Prin Invest Colwell, R. N. *NASA Tech Officer* HQ-P/Vitale, J. A. *CASE Category* 39-Env Sci, NEC

NSG 7262 **University of California - Berkeley** **1440**
Primate hemodynamics and metabolism under conditions of weightlessness

Period 07/01/76-09/30/77 *Obligations* FY77: $16,200 TOTAL: $91,200
Prin Invest Pace, N. *NASA Tech Officer* HQ-SB/Halstead, T. W. *CASE Category* 51-Biology
HQ-SB/Young, R. S.

NSG 7277 **University of California - Berkeley** **1441**
Adapt and evaluate a ranicon particle detection system for the experiment to measure lunar magnetic fields using the electron reflection method on the terrestrial bodies orbiter mission

Period 09/01/76-10/31/77 *Obligations* FY77: $41,430 TOTAL: $41,430
Prin Invest Lin, R. P. *NASA Tech Officer* HQ-SL/Smith, M. J. *CASE Category* 31-Atmos Sci
HQ-SL/Quaide, W. L.

NSG 7336 **University of California - Berkeley** **1442**
Gravity, body mass, and composition and metabolic rate

Period 12/01/76-11/30/77 *Obligations* FY77: $50,000 TOTAL: $50,000
Prin Invest Pace, N. *NASA Tech Officer* HQ-SB/Halstead, T. W. *CASE Category* 51-Biology
HQ-SB/Young, R. S.

NAS 2-9539 **University of California - Davis** **1443**
Study of biological and ecological effects of energy transmission by microwaves on insect behavior

Period 03/18/77-12/18/77 *Obligations* FY77: $22,688 TOTAL: $22,688
Prin Invest Gary, N. E. *NASA Tech Officer* ARC/Kennard, J. M. *CASE Category* 51-Biology

NAS 3-19850 **University of California - Davis** **1444**
Perform an X-ray flourescence analysis

Period 07/03/75-12/31/76 *Obligations* FY77 TOTAL: $16,000
Prin Invest Camil, T. *NASA Tech Officer* LERC/King, R. *CASE Category* 39-Env Sci, NEC

NAS 5-22964 **University of California - Davis** **1445**
Nimbus-G experiment team support for earth radiation budget

Period 02/18/76-02/18/79 *Obligations* FY77: $12,000 TOTAL: $27,599
Prin Invest Coulson, K. L. *NASA Tech Officer* GSFC/Nelson, D. *CASE Category* 41-Aero Engr

NAS 9-15203 **University of California - Davis** **1446**
Bone density by photon absorptiometry

Period 01/01/77-12/31/77 *Obligations* FY77: $40,000 TOTAL: $40,000
Prin Invest Vogel, J. M. *NASA Tech Officer* JSC/Rambaut, P. C. *CASE Category* 53-Other Medical

NCA 2-180607 **University of California - Davis** **1447**
Investigations into the prediction of soil moisture

Period	Obligations	
03/01/76-02/28/78	FY77:	TOTAL $7,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hatfield, J L	ARC/Millard, J P	32-Geological Sci

NCA 2-180701 **University of California - Davis** **1448**
Blood protein and red cell turnover rate studies in mature dogs exposed to hyper-g using the continuous low-g animal centrifuge

Period	Obligations	
11/15/76-11/14/77	FY77 $7,814	TOTAL $7,814
Prin Invest	*NASA Tech Officer*	*CASE Category*
Evans, J W	ARC/Oyama, J	51-Biology

NCA 2-180703 **University of California - Davis** **1449**
Human performance under selected environmental stresses Effect of heat acclimation and physical training on the body fluids and temperature responses during heat stress

Period	Obligations	
04/01/77-12/31/78	FY77 $7,200	TOTAL $7,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bernauer, E M	ARC/Greenleaf, J E	53-Other Medical

NCA 2-180704 **University of California - Davis** **1450**
Trajectory analysis of saltating particles

Period	Obligations	
06/15/77-06/14/78	FY77 $12,000	TOTAL $12,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
White, B R	ARC/Pollack, J B	46-Mech Engr

NGL 05-004-008 **University of California - Davis** **1451**
Physiological effects of chronic acceleration

Period	Obligations	
03/01/65-01/31/79	FY77	TOTAL $815,797
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, A H	ARC/Oyama, J	51-Biology

NSG 2234 **University of California - Davis** **1452**
Thermoregulation in rats Effects of hypergravity and norepinephrine

Period	Obligations	
07/01/77-06/30/78	FY77 $20,000	TOTAL $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Horowitz, B A Horowitz, J M	ARC/Oyama, J	51-Biology

NSG 2256 **University of California - Davis** **1453**
Turbulent transport modeling of separating and reattaching shear flow

Period	Obligations	
10/01/77-07/31/78	FY77 $48,500	TOTAL $48,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Launder, B Hanjalic, K	ARC/Marvin, J G. ARC/Rubesin, M. W	41-Aero Engr

NSG 509 **University of California - Davis** **1454**
Use of remote data in hydrologic engineering models

Period	Obligations	
02/01/76-02/28/78	FY77 $80,000	TOTAL $130,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Algazi, V R	GSFC/Salomonson, V V	39-Env Sci, NEC

NCA 2-280701 **Hastings College of Law** **1455**
An investigation of selected legal questions engendered by NASA-sponsored program concerning the settlement of outer space and the use thereof for permanent habitation

Period	Obligations	
06/01/77-05/31/78	FY77 $3,510	TOTAL $3,510
Prin Invest	*NASA Tech Officer*	*CASE Category*
Forrester, R	ARC/Glazer, J H	99-Multi-Discip

NGR 05-041-012 **University of California - Irvine** **1456**
Diagnosis of preclinical viral illness and prophylaxis against viral disease

Period	Obligations	
07/13/71-12/01/77	FY77 $35,000	TOTAL $209,342
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tilles, J G.	ARC/Mandel, A D	52-Clinical Med

NSG 7208 **University of California - Irvine** **1457**
Gas phase reactions of clorine and fluorine compound of interest for stratospheric chemistry

Period	Obligations	
01/01/76-09/30/77	FY77 $79,214	TOTAL $175,262
Prin Invest	*NASA Tech Officer*	*CASE Category*
Molina, M J	HQ-SU/Seals, R K, Jr HQ-SU/Tilford, S. G	31-Atmos Sci

NSG 7375 **University of California - Irvine** **1458**
Coronal plasma structures

Period	Obligations	
06/01/77-09/30/77	FY77 $8,000	TOTAL $8,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanHoven, G	HQ-SU/Timothy, A F	31-Atmos Sci

NAS 2-7251 **University of California - Los Angeles** **1459**
Pioneer F/G data analysis

Period	Obligations	
10/13/72-09/30/77	FY77	TOTAL $290,938
Prin Invest	*NASA Tech Officer*	*CASE Category*
Coleman, P J, Jr	ARC/Hall, C F ARC/Porter, D F	11-Astronomy

NAS 2-8808 **University of California - Los Angeles** **1460**
Pioneer/Venus magnetometer

Period	Obligations	
03/04/75-08/31/78	FY77 $195,000	TOTAL $660,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Russell, C T Snare, R C	ARC/Hall, C F ARC/Sinnott, D B	19-Phys Sci, NEC

NAS 2-9128 **University of California - Los Angeles** **1461**
Interdisciplinary scientist, Pioneer/Venus program

Period 02/09/76-10/01/78 *Obligations* FY77: TOTAL: $1,759
Prin Invest Kaula, W. H. *NASA Tech Officer* ARC/Hall, C. F. ARC/Porter, D. L. *CASE Category* 11-Astronomy

NAS 2-9131 **University of California - Los Angeles** **1462**
Interdisciplinary scientist, Pioneer/Venus program

Period 02/09/76-10/01/78 *Obligations* FY77: TOTAL: $2,883
Prin Invest Schubert, G. *NASA Tech Officer* ARC/Hall, C. F. ARC/Porter, D. L. *CASE Category* 11-Astronomy

NAS 2-9491 **University of California - Los Angeles** **1463**
Pioneer/Venus data analysis of magnetic fields experiment

Period 08/01/77-09/30/78 *Obligations* FY77: $60,000 TOTAL: $60,000
Prin Invest Russell, C. T *NASA Tech Officer* ARC/Hall, C. F. *CASE Category* 31-Atmos Sci

NAS 5-20064 **University of California - Los Angeles** **1464**
Magnetic field investigation of ISEE mother/daugher spacecraft

Period 06/05/74-10/31/79 *Obligations* FY77: $63,000 TOTAL: $636,006
Prin Invest Russell, C. T. *NASA Tech Officer* GSFC/Davis, M. A *CASE Category* 13-Physics

NAS 5-23702 **University of California - Los Angeles** **1465**
ATS-6 environmental measurements experiment data reduction and analysis

Period 10/29/76-10/14/77 *Obligations* FY77 $52,500 TOTAL: $52,500
Prin Invest McPherson, R. L. Coleman, P. J., Jr. *NASA Tech Officer* GSFC/Corrigan, J. P *CASE Category* 39-Env Sci, NEC

NAS 6-2463 **University of California - Los Angeles** **1466**
GEOS-C research into tectonics of ocean regions

Period 04/18/74-10/31/77 *Obligations* FY77: $51,596 TOTAL: $148,096
Prin Invest Kaula, W. M. Lingenfelter, R. E. *NASA Tech Officer* WFC/Stanley, H. R. WFC/Rossi, L. C *CASE Category* 33-Oceanography

NAS 6-2703 **University of California - Los Angeles** **1467**
Services and materials necessary for the construction of initial synoptic ocean dynamics models for the East Coast test area and related activities

Period 01/15/76-01/14/77 *Obligations* FY77: TOTAL: $54,484
Prin Invest Mintz, Y. Semtner, A. J. *NASA Tech Officer* WFC/Stanley, H. R. WFC/Huang, N. E. *CASE Category* 33-Oceanography

NAS 8-30579 **University of California - Los Angeles** **1468**
Zero solidification of a sodium chloride-lithium fluoride eutectic mixture

Period 01/11/74-12/31/76 *Obligations* FY77: TOTAL: $54,700
Prin Invest Yue, A. S. *NASA Tech Officer* MSFC/Adams, W. R. MSFC/Boese, A. *CASE Category* 19-Phys Sci, NEC

NAS 8-32571 **University of California - Los Angeles** **1469**
Tethered sub-satellite study

Period 05/02/77-11/15/77 *Obligations* FY77: $15,000 TOTAL: $15,000
Prin Invest Coleman, P. J., Jr. *NASA Tech Officer* MSFC/Page, M. A. MSFC/Siebel, M. P. *CASE Category* 32-Geological Sci

NCA 2-390601 **University of California - Los Angeles** **1470**
Concentrations of glycotroprotein hormones and prolactin

Period 09/01/75-08/31/76 *Obligations* FY77: TOTAL: $13,149
Prin Invest Parlow, A. *NASA Tech Officer* ARC/Ellis, S. *CASE Category* 51-Biology

NCA 2-390701 **University of California - Los Angeles** **1471**
Concentrations of thyrotropin, luteinizing hormone, and prolactin in the pituitary and plasma of space shuttle simulator rats

Period 09/01/76-12/31/77 *Obligations* FY77: $13,000 TOTAL: $15,000
Prin Invest Parlow, A. *NASA Tech Officer* ARC/Grindeland, R. E. *CASE Category* 51-Biology

NCA 2-390702 **University of California - Los Angeles** **1472**
Low-duty-cycle molecular-beam mass-spectrometer sampling

Period 03/01/77-10/31/77 *Obligations* FY77: $10,000 TOTAL: $10,000
Prin Invest Knuth, E. L. *NASA Tech Officer* ARC/Lincoln, K. A. *CASE Category* 13-Physics

NCA 2-390801 **University of California - Los Angeles** **1473**
Studies on rat b-lipotropin

Period 10/01/77-10/01/79 *Obligations* FY77: $15,400 TOTAL: $15,400
Prin Invest Parlow, A. *NASA Tech Officer* ARC/Ellis, S. *CASE Category* 61-Biol Aspects

NGL 05-007-002 **University of California - Los Angeles** **1474**
Theoretical evaluation of the internal structures and atmospheres of planets and the moon

Period 01/01/62-12/31/79 *Obligations* FY77: $35,609 TOTAL: $763,161
Prin Invest Kaula, W. M. Schubert, G. *NASA Tech Officer* HQ-SL/Goldstein, B. E HQ-SL/Quaide, W. L. *CASE Category* 32-Geological Sci

NGL 05-007-004 University of California - Los Angeles 1475
Theoretical & experimental investigations of particles & fields in space, including construction of prototype instrumentation

Period	Obligations	
03/01/62-09/30/79	FY77: $120,000	TOTAL: $2,450,554
Prin Invest	*NASA Tech Officer*	*CASE Category*
Coleman, P. J., Jr.	HQ-ST/Cauffman, D. P.	39-Env Sci, NEC
	HQ-ST/Schmerling, E. R.	

NGL 05-007-006 University of California - Los Angeles 1476
Studies on the high pressure solid phases of inert gases, particularly as they might relate to planetary interiors

Period	Obligations	
09/24/62-09/30/76	FY77:	TOTAL: $470,622
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kennedy, G. C.	HQ-SL/Bryson, R. P.	32-Geological Sci
	HQ-SL/Roberson, F. I.	

NGL 05-007-190 University of California - Los Angeles 1477
Theoretical space plasma physics

Period	Obligations	
06/27/68-09/30/79	FY77: $100,000	TOTAL: $383,380
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kennel, C. F.	HQ-ST/Taylor, W. W.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

NGL 05-007-367 University of California - Los Angeles 1478
Lunar sample analysis

Period	Obligations	
06/30/72-03/31/78	FY77: $64,000	TOTAL: $410,570
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wasson, J. T.	JSC/Harris, J. W.	12-Chemistry

NGL 05-007-379 University of California - Los Angeles 1479
Flight dynamics analysis and system identification

Period	Obligations	
12/01/72-11/30/77	FY77:	TOTAL: $124,548
Prin Invest	*NASA Tech Officer*	*CASE Category*
Balakrishnan, A. V.	DFRC/Rediess, H. A.	41-Aero Engr

NGR 05-007-221 University of California - Los Angeles 1480
Nature and changes of organic matter in deep ocean cores

Period	Obligations	
08/08/69-12/31/77	FY77: $70,202	TOTAL: $464,617
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaplan, I. R.	HQ-SB/Young, R. S.	32-Geological Sci

NGR 05-007-276 University of California - Los Angeles 1481
Data analysis on the OGO-3 and OGO-4 search coil magnetometers

Period	Obligations	
04/03/70-04/30/78	FY77:	TOTAL: $180,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Holzer, R. E.	HQ-ST/Taylor, W. W.	13-Physics

NGR 05-007-289 University of California - Los Angeles 1482
Lunar sample analysis

Period	Obligations	
12/29/70-01/31/78	FY77: $77,900	TOTAL: $501,580
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaplan, I. R.	JSC/Harris, J. W.	13-Physics

NGR 05-007-317 University of California - Los Angeles 1483
Photogeologic interpretation of Mariner/Mars

Period	Obligations	
03/09/71-01/14/78	FY77: $22,000	TOTAL: $105,971
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schubert, G.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NGR 05-007-328 University of California - Los Angeles 1484
Numerical modeling of the global atmosphere and the world oceans

Period	Obligations	
08/15/71-11/30/77	FY77: $20,000	TOTAL: $370,649
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arakawa, A.	GSFC/Halem, M.	31-Atmos Sci

NGR 05-007-329 University of California - Los Angeles 1485
Elemental variations in genetically related meteorites

Period	Obligations	
04/27/71-02/28/79	FY77: $25,968	TOTAL: $300,818
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wasson, J. T.	HQ-SL/French, B. M.	32-Geological Sci
Bild, R. W.	HQ-SL/Quaide, W. L.	
Rambaldi, E.		

NGR 05-007-337 University of California - Los Angeles 1486
Approximation concepts in structural synthesis

Period	Obligations	
04/05/72-09/30/77	FY77: $15,000	TOTAL: $317,313
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schmit, L. A.	LARC/Stroud, W. J.	41-Aero Engr

NGR 05-007-351 University of California - Los Angeles 1487
Correlative studies of Apollo 15 and 16 satellite magnetometer data with the Explorer 35 and lunar surface magnetometer data

Period	Obligations	
05/25/72-01/31/78	FY77: $99,500	TOTAL: $522,779
Prin Invest	*NASA Tech Officer*	*CASE Category*
Coleman, P. J., Jr.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NGR 05-007-407 University of California - Los Angeles 1488
Paleobiologic studies of the antiquity and precambrian evolution of life

Period	Obligations	
04/10/73-05/31/78	FY77: $34,781	TOTAL: $155,835
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schopf, J. W.	HQ-SB/Young, R. S.	32-Geological Sci

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NGR 05-007-414 University of California - Los Angeles 1489
Aeroelastic stability of helicopter blades in hover and in forward flight using various unsteady aerodynamic theories

Period	Obligations	
09/01/73-08/31/78	FY77: $44,000	TOTAL: $185,969
Prin Invest	*NASA Tech Officer*	*CASE Category*
Friedmann, P.	LARC/Hammond, C. E.	41-Aero Engr
	LARC/Kvaternik, R. G.	

NGR 05-007-416 University of California - Los Angeles 1490
Research on interaction of satellite-speed helium atoms with aluminum and quartz surfaces

Period	Obligations	
10/09/73-09/30/77	FY77: $20,000	TOTAL: $130,381
Prin Invest	*NASA Tech Officer*	*CASE Category*
Knuth, E. L.	LARC/Keating, G. M.	13-Physics

NGR 05-007-418 University of California - Los Angeles 1491
Utricular influences on visual motor control research

Period	Obligations	
09/01/73-12/31/77	FY77: $25,000	TOTAL: $93,713
Prin Invest	*NASA Tech Officer*	*CASE Category*
Markham, C. H.	ARC/Daunton, N. G.	51-Biology

NSG 1270 University of California - Los Angeles 1492
Space borne and ground based polarimeter to monitor atmospheric aerosols

Period	Obligations	
01/01/76-11/30/77	FY77: $14,000	TOTAL: $44,267
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kuriyan, J. G.	LARC/McCormick, M. P.	31-Atmos Sci
	LARC/Crumbly, K. H.	

NSG 2171 University of California - Los Angeles 1493
Aeronautics and air transport research program

Period	Obligations	
07/01/76-12/31/77	FY77: $20,710	TOTAL: $48,010
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cole, J. D.	ARC/Chapman, G. T.	41-Aero Engr
Meecham, W. C.		

NSG 3082 University of California - Los Angeles 1494
Investigation of aeroelastic effects in wind turbines

Period	Obligations	
09/01/75-08/31/78	FY77:	TOTAL: $68,273
Prin Invest	*NASA Tech Officer*	*CASE Category*
Friedman, P. P.	LERC/Spera, D. A.	46-Mech Engr

NSG 3116 University of California - Los Angeles 1495
Forecast of future aviation fuels

Period	Obligations	
08/01/76-09/30/78	FY77:	TOTAL: $98,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
English, J. M.	LERC/Grobman, J. S.	41-Aero Engr
Liu, C. Y.	LERC/Reynolds, T. W.	

NSG 3153 University of California - Los Angeles 1496
Cryo-coolant helium super conductor interaction

Period	Obligations	
06/01/77-11/01/77	FY77: $24,000	TOTAL: $24,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Frederking, T. H.	LERC/Burkhart, J. A.	46-Mech Engr
	LERC/Seikel, G. R.	

NSG 4001 University of California - Los Angeles 1497
Short-time climatology related to air turbulence

Period	Obligations	
03/01/74-09/30/78	FY77: $39,177	TOTAL: $118,809
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wurtele, M. G.	DFRC/Ehernberger, L. J.	31-Atmos Sci

NSG 5056 University of California - Los Angeles 1498
Investigation of the far UV spectra of the pole on BE stars Cen and Cyg

Period	Obligations	
02/01/75-09/30/77	FY77:	TOTAL: $8,625
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peters, C. J.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5070 University of California - Los Angeles 1499
Depletions and physical conditions within diffuse interstellar clouds

Period	Obligations	
10/01/75-09/30/77	FY77:	TOTAL: $2,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jura, M. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5149 University of California - Los Angeles 1500
Observations of hot white dwarfs from SAS-3

Period	Obligations	
01/01/77-12/31/77	FY77: $8,359	TOTAL: $8,359
Prin Invest	*NASA Tech Officer*	*CASE Category*
Margon, B. H.	GSFC/Piterski, N. J.	11-Astronomy

NSG 5165 University of California - Los Angeles 1501
A search for slow X-ray pulsers from orbiting astronomical observatory Copernicus

Period	Obligations	
03/14/77-03/13/78	FY77: $8,540	TOTAL: $8,540
Prin Invest	*NASA Tech Officer*	*CASE Category*
Margon, B. H.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5169 University of California - Los Angeles 1502
Physical conditions, abundances and chemistry in diffuse interstellar clouds

Period	Obligations	
03/14/77-03/18/78	FY77: $1,942	TOTAL: $1,942
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jura, M. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5190 **University of California - Los Angeles** **1503**
Energetic particle precipitation effects on stratospheric and mesospheric composition and dynamics

Period 07/18/77-07/17/78 *Obligations* FY77: $34,413 TOTAL: $34,413
Prin Invest Thorne, R. M.; Siscoe, G. L.; Venkateswaran, S. V.
NASA Tech Officer GSFC/Reed, E. I.
CASE Category 31-Atmos Sci

NSG 7002 **University of California - Los Angeles** **1504**
Anelastic models of fault zone tectonics and their measurement by space techniques

Period 11/01/73-12/31/77 *Obligations* FY77: $82,705 TOTAL: $236,110
Prin Invest Kaula, W. M.; Schubert, G.; Jackson, D. D.
NASA Tech Officer HQ-ES/Murphy, J. P.
CASE Category 32-Geological Sci

NSG 7052 **University of California - Los Angeles** **1505**
Shock processes in terrestrial analogs of porous lunar & meteoritic materials

Period 04/01/74-01/31/78 *Obligations* FY77: TOTAL: $102,500
Prin Invest Kieffer, S. W.
NASA Tech Officer HQ-SL/Williams, R. J.; HQ-SL/Flinn, E. A.
CASE Category 32-Geological Sci

NSG 7158 **University of California - Los Angeles** **1506**
Three dimensional study of solar oscillation

Period 07/01/75-09/30/77 *Obligations* FY77: $22,000 TOTAL: $42,000
Prin Invest Ulrich, R. K.
NASA Tech Officer HQ-ST/Timothy, A. F.
CASE Category 13-Physics

NSG 7164 **University of California - Los Angeles** **1507**
Dynamical studies of the Venus atmosphere

Period 09/01/75-08/31/77 *Obligations* FY77 TOTAL: $45,090
Prin Invest Schubert, G.
NASA Tech Officer HQ-SL/Fellows, R. F.; HQ-SL/Brunk, W. E.
CASE Category 31-Atmos Sci

NSG 7180 **University of California - Los Angeles** **1508**
Investigation of the subsonic magnetosheath plasma and magnetic field data from Explorer

Period 10/01/75-09/30/77 *Obligations* FY77: $39,961 TOTAL: $59,950
Prin Invest Siscoe, G. L.
NASA Tech Officer HQ-ST/Taylor, W. W.; HQ-ST/Schmerling, E. R.
CASE Category 39-Env Sci, NEC

NSG 7239 **University of California - Los Angeles** **1509**
Possible correlations between the interplanetary magnetic field and zodiacal light polarization vectors

Period 06/01/76-09/30/77 *Obligations* FY77: TOTAL: $15,135
Prin Invest Aller, L. H.
NASA Tech Officer HQ-SL/Fellows, R. F.; HQ-SL/Donn, B. D.
CASE Category 31-Atmos Sci

NSG 7276 **University of California - Los Angeles** **1510**
An investigation of Jupiter's magnetosphere and of the solar wind at large distances from the sun using data from the Pioneer 10 and 11

Period 07/01/76-09/30/77 *Obligations* FY77: $35,000 TOTAL: $35,000
Prin Invest Coleman, P. J., Jr.
NASA Tech Officer HQ-ST/Taylor, W. W.
CASE Category 39-Env Sci, NEC

NSG 7282 **University of California - Los Angeles** **1511**
Experimental study of Martian carbonate formation

Period 10/01/76-09/30/77 *Obligations* FY77: $14,837 TOTAL: $14,837
Prin Invest Kieffer, H. H.
NASA Tech Officer HQ-SL/Dwornik, S. E.; HQ-SL/Wahmann, R.
CASE Category 32-Geological Sci

NSG 7295 **University of California - Los Angeles** **1512**
Analysis of data from the helium vector magnetometers on the Pioneer 10 and 11 spacecraft

Period 10/01/76-09/30/77 *Obligations* FY77: $100,000 TOTAL: $100,000
Prin Invest Coleman, P. J., Jr.
NASA Tech Officer HQ-SL/Fellows, R. F.; HQ-SL/Quaide, W. L.
CASE Category 31-Atmos Sci

NSG 7315 **University of California - Los Angeles** **1513**
Theoretical studies of moon plasma interactions

Period 02/01/77-01/31/78 *Obligations* FY77 $34,700 TOTAL $34,700
Prin Invest Schubert, G.
NASA Tech Officer HQ-SL/Goldstein, B. E.; HQ-SL/Quaide, W. L.
CASE Category 32-Geological Sci

NSG 7335 **University of California - Los Angeles** **1514**
Rare earths in inclusions from different classes of carbonaceous chondrites

Period 03/01/77-02/28/78 *Obligations* FY77 $29,851 TOTAL $29,851
Prin Invest Boynton, W. V.
NASA Tech Officer HQ-SL/French, B. M.; HQ-SL/Quaide, W. L.
CASE Category 32-Geological Sci

NSG 7341 **University of California - Los Angeles** **1515**
Physics of astrophysical plasmas

Period	Obligations	
04/01/77-03/31/78	FY77: $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Kennel, C. F.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NGL 05-008-005 **University of California - Riverside** **1516**
Atomic scattering theory

Period	Obligations	
11/29/66-02/28/79	FY77:	TOTAL: $130,953
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Poe, R. T.	GSFC/Temkin, A.	13-Physics

NGR 05-008-022 **University of California - Riverside** **1517**
Measurement of neutrons from sun

Period	Obligations	
05/16/69-08/15/77	FY77: $28,000	TOTAL: $340,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
White, R. S.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NAS 2-6552 **University of California - San Diego** **1518**
Data analysis of Jovian trapped radiation by Pioneer F/G

Period	Obligations	
01/25/72-06/30/76	FY77: $35,293	TOTAL: $733,844
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Fillius, R. W.	ARC/Hall, C. F. ARC/Porter, D. L	11-Astronomy

NAS 5-21055 **University of California - San Diego** **1519**
Programmable auroral particles experiment to be flown on the ATS-F

Period	Obligations	
06/27/69-02/15/77	FY77: $36,665	TOTAL: $1,350,321
Prin Invest	*NASA Tech Officer*	*CASE Categor*
McIlwain, C. E.	GSFC/Corrigan, J. P.	13-Physics

NAS 5-22375 **University of California - San Diego** **1520**
Hard X-ray imaging system study

Period	Obligations	
05/13/75-12/31/77	FY77: $71,368	TOTAL: $182,382
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Peterson, L. E.	GSFC/Stouffer, C. G.	11-Astronomy

NAS 5-22556 **University of California - San Diego** **1521**
Mission definition study of an astronomical satellite survey in the infrared

Period	Obligations	
06/15/75-09/19/76	FY77:	TOTAL: $14,585
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Soifer, B. T.	GSFC/Hymowitz, E. W	11-Astronomy

NAS 5-23481 **University of California - San Diego** **1522**
A spacecraft charging study

Period	Obligations	
05/03/76-07/03/78	FY77: $41,419	TOTAL: $141,015
Prin Invest	*NASA Tech Officer*	*CASE Categor*
McIlwain, C. E.	GSFC/Bartlett, R. O.	11-Astronomy

NAS 5-23705 **University of California - San Diego** **1523**
Data reduction and analysis of environmental measurements experiments data onboard ATS-6

Period	Obligations	
11/15/76-12/31/77	FY77: $73,335	TOTAL: $73,335
Prin Invest	*NASA Tech Officer*	*CASE Categor*
McIlwain, C. E.	GSFC/Corrigan, J. P	31-Atmos Sci

NAS 6-2506 **University of California - San Diego** **1524**
GEOS-C research

Period	Obligations	
12/17/74-10/31/77	FY77: $4,300	TOTAL: $57,300
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Hendershott, M. Munk, W. Zetler, B.	WFC/Stanley, R.	11-Astronomy

NAS 8-27974 **University of California - San Diego** **1525**
Design & development of AGR-4 MeV range gamma ray

Period	Obligations	
06/22/72-04/15/78	FY77: $521,000	TOTAL: $6,491,019
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Peterson, L. E.	MSFC/Jordan, W. E. MSFC/Jones, J. B.	11-Astronomy

NAS 8-31145 **University of California - San Diego** **1526**
Joint analysis of satellite data study

Period	Obligations	
12/17/74-04/30/78	FY77: $42,000	TOTAL: $73,557
Prin Invest	*NASA Tech Officer*	*CASE Categor*
McIlwain, C. E.	MSFC/Oran, W. A. MSFC/Chappell, C. R.	13-Physics

NAS 9-15381 **University of California - San Diego** **1527**
Near earth resources workshop

Period	Obligations	
07/01/77-10/31/77	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Arnold, J. R.	JSC/Harris, J. W.	12-Chemistry

NASW 2996 **University of California - San Diego** **1528**
Development of a 200 channel photometer for use in low light level astronomy

Period	Obligations	
07/01/76-06/30/77	FY77: $142,000	TOTAL: $142,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
McIlwain, C. E. Beaver, E. A Arms, R. H	HQ-SA/Aucremanne, M. J. HQ-SA/Rosendhal, J. D.	31-Atmos Sci

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NGL 05-005-003 **University of California - San Diego** **1529**
Laboratory and balloon experiments in X-ray and gamma ray astronomy

Period	Obligations	
09/15/62-11/30/77	FY77: $155,000	TOTAL: $2,095,752
Prin Invest	**NASA Tech Officer**	**CASE Category**
Peterson, L. E.	HQ-SA/Sofia, S.	13-Physics
Pelling, R. M.	HQ-SA/Opp, A. G.	

NGL 05-005-004 **University of California - San Diego** **1530**
Theoretical studies in astrophysics

Period	Obligations	
02/04/63-03/31/80	FY77: $27,728	TOTAL: $747,361
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gould, R. J.	HQ-SA/Rosendhal, J. D	11-Astronomy
Burbidge, G. R.	HQ-SA/Roman, N. G.	

NGL 05-005-007 **University of California - San Diego** **1531**
Study of geomagnetically trapped particles by Explorer & Injun satellite data, refining particle detectors, detector systems & telemetered-data processing equipment

Period	Obligations	
02/20/64-09/30/79	FY77: $194,000	TOTAL: $2,114,894
Prin Invest	**NASA Tech Officer**	**CASE Category**
McIlwain, C. E	HQ-ST/Cauffman, D. P.	13-Physics
	HQ-ST/Schmerling, E. R.	

NGL 05-009-002 **University of California - San Diego** **1532**
Studies of the composition and structure of meteorites

Period	Obligations	
10/02/63-02/28/79	FY77: $24,024	TOTAL: $624,178
Prin Invest	**NASA Tech Officer**	**CASE Category**
Arrhenius, G	HQ-SL/Williams, R. J.	32-Geological Sci
	HQ-SL/Flinn, E. A.	

NGL 05-009-004 **University of California - San Diego** **1533**
Research on interaction of meteorites & cosmic rays, as well as consideration of origin & history of meteorites

Period	Obligations	
12/19/62-03/14/80	FY77: $31,167	TOTAL: $972,414
Prin Invest	**NASA Tech Officer**	**CASE Category**
Arnold, J. R.	HQ-SL/French, B. M.	32-Geological Sci
Fruchter, J. S.	HQ-SL/Quaide, W. L.	
Kohl, C. P.		

NGL 05-009-005 **University of California - San Diego** **1534**
Research on general geochemical problems, including meteorite materials, rare gas content of meteorites & separation in gas phase at time of formation of solar system

Period	Obligations	
10/31/62-02/28/79	FY77: $16,999	TOTAL: $509,706
Prin Invest	**NASA Tech Officer**	**CASE Category**
Suess, H. E	HQ-SL/Goldstein, B. E.	
Herndon, J. M.	HQ-SL/Quaide, W. L.	19-Phys Sci, NEC

NGL 05-009-109 **University of California - San Diego** **1535**
In-flight evaluation of weightlessness and gravity on cardiopulmonary function of man

Period	Obligations	
02/17/69-10/31/79	FY77: $115,788	TOTAL: $843,139
Prin Invest	**NASA Tech Officer**	**CASE Category**
West, J. B.	ARC/Greenleaf, J. E.	53-Other Medical
Michels, D. B.		
Rubinfeld, A. R.		

NGL 05-009-148 **University of California - San Diego** **1536**
Lunar sample analysis

Period	Obligations	
02/11/71-01/31/80	FY77: $102,629	TOTAL: $776,629
Prin Invest	**NASA Tech Officer**	**CASE Category**
Arnold, J. R.	JSC/Harris, J. W.	12-Chemistry

NGL 05-009-150 **University of California - San Diego** **1537**
Lunar sample analysis

Period	Obligations	
02/01/71-01/31/80	FY77: $188,019	TOTAL: $1,118,111
Prin Invest	**NASA Tech Officer**	**CASE Category**
Marti, K.	JSC/Harris, J. W.	12-Chemistry

NGR 05-005-005 **University of California - San Diego** **1538**
Study of lunar gamma ray emission

Period	Obligations	
09/10/63-05/31/78	FY77: $54,229	TOTAL: $661,072
Prin Invest	**NASA Tech Officer**	**CASE Category**
Arnold, J. R.	HQ-SL/Smith, M. J	32-Geological Sci
	HQ-SL/Quaide, W. L.	

NGR 05-005-055 **University of California - San Diego** **1539**
Infrared astronomic observation from high altitude airplane/telescope program

Period	Obligations	
06/05/73-11/30/77	FY77: $87,000	TOTAL: $226,217
Prin Invest	**NASA Tech Officer**	**CASE Category**
Soifer, B. T.	ARC/Gillespie, C. M., Jr	11-Astronomy
	ARC/Cameron, R. M.	

NGR 05-009-075 **University of California - San Diego** **1540**
Velocity distributions and electron moment equations

Period	Obligations	
09/13/67-02/28/77	FY77:	TOTAL: $432,784
Prin Invest	**NASA Tech Officer**	**CASE Category**
Banks, P. M	HQ-ST/Taylor, W. W	13-Physics

NGR 05-009-076 **University of California - San Diego** **1541**
Theory of wave propagation and wave-particle interaction in the earth magnetosphere

Period	Obligations	
10/19/67-09/30/77	FY77:	TOTAL: $358,656
Prin Invest	**NASA Tech Officer**	**CASE Category**
Fejer, J. A	HQ-ST/Cauffman, D. P.	13-Physics

NGR 05-009-083 University of California - San Diego 1542
Electrophysiological studies of the nervous system

Period	Obligations	
01/01/68-09/01/78	FY77:	TOTAL: $113,059
Prin Invest	*NASA Tech Officer*	*CASE Category*
Galambos, R	ARC/Winter, D. L.	61-Biol Aspects

NGR 05-009-110 University of California - San Diego 1543
The structure and evolution of the asteroid belt

Period	Obligations	
01/23/70-08/31/77	FY77: $45,000	TOTAL: $428,690
Prin Invest	*NASA Tech Officer*	*CASE Category*
Alfven, H.	HQ-SL/Donn, B. D.	11-Astronomy
	HQ-SL/Fellows, R. F.	

NGR 05-009-188 University of California - San Diego 1544
Construction of a 200 channel photometer for use in low light level astronomy

Period	Obligations	
05/17/72-09/30/77	FY77:	TOTAL: $550,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McIlwain, C. E	HQ-SA/Roman, N. G.	11-Astronomy
Beaver, E. A.		

NGR 05-009-213 University of California - San Diego 1545
Hydrostatic pressure and macro-molecular synthesis in marine bacteria

Period	Obligations	
04/12/73-08/31/77	FY77:	TOTAL: $169,954
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yayanos, A. A	HQ-SB/Young, R. S.	51-Biology

NGR 05-009-218 University of California - San Diego 1546
An automatic analyzer for amino acids purines and pyrimidines to examine lunar and Martian soil samples

Period	Obligations	
09/12/72-10/15/77	FY77: $41,101	TOTAL: $214,595
Prin Invest	*NASA Tech Officer*	*CASE Category*
Miller, S. L.	HQ-SB/Young, R. S.	12-Chemistry

NGR 05-009-239 University of California - San Diego 1547
Low resolution spectrograph for the large space telescope

Period	Obligations	
10/01/73-06/30/77	FY77	TOTAL: $19,307
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beaver, E. A.	GSFC/Sobieski, S	11-Astronomy
McIlwain, C. E	GSFC/Meese, K. J	
Burbidge, E. M.		

NGR 05-009-246 University of California - San Diego 1548
Geophysical perturbations on satellite geodesy

Period	Obligations	
11/01/73-12/31/77	FY77: $291,281	TOTAL: $626,236
Prin Invest	*NASA Tech Officer*	*CASE Category*
Berger, J.	GSFC/Carpenter, L.	39-Env Sci, NEC
Brune, J. N.		

NGR 05-009-257 University of California - San Diego 1549
Single scan television radiography

Period	Obligations	
11/01/73-11/01/78	FY77: $35,000	TOTAL: $163,979
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baily, N. A.	ARC/Sandler, H.	52-Clinical Med

NGR 05-009-260 University of California - San Diego 1550
Rapid quality control of photographs

Period	Obligations	
03/18/74-07/31/76	FY77:	TOTAL: $16,890
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lee, S. H.	GSFC/Shulman, A. R	13-Physics
	GSFC/Webb, W. C.	

NGR 05-009-264 University of California - San Diego 1551
Optical parallel processing

Period	Obligations	
03/15/74-11/30/77	FY77:	TOTAL: $142,973
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lee, S. H.	GSFC/Schaefer, D. H.	49-Engr, NEC

NSG 1386 University of California - San Diego 1552
Measurements in turbulent boundary layers with slot injection of helium

Period	Obligations	
02/01/77-01/31/78	FY77 $40,653	TOTAL: $40,653
Prin Invest	*NASA Tech Officer*	*CASE Category*
Libby, P. A.	LARC/Cary, A. M., Jr.	41-Aero Engr
Larue, J. C.	LARC/Hefner, J. N.	

NSG 3034 University of California - San Diego 1553
Preparation and identification of hybrides of intermetallic compounds

Period	Obligations	
08/01/74-04/30/78	FY77 $26,700	TOTAL: $131,031
Prin Invest	*NASA Tech Officer*	*CASE Category*
Oesterreicher, H	LERC/Woollam, J. A	47-Materials Engr

NSG 3047 University of California - San Diego 1554
Investigation of droplet burning at zero g

Period	Obligations	
06/01/75-08/31/78	FY77 $25,000	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Williams, F. A.	LERC/Haggard, J. B	43-Chem Engr

NSG 3055 University of California - San Diego 1555
Chemical vapor deposition on high TC superconductors

Period	Obligations	
05/01/75-11/01/77	FY77 $40,000	TOTAL: $145,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Webb, G. W	LERC/Woollam, J. A	19-Phys Sci, NEC
Engelhardt, J. J.	LERC/Brown, G. V	

NSG 3103 **University of California - San Diego** **1556**
Superconductivity in ternary molybdenum sulfides

Period	Obligations	
04/01/76-04/01/78	FY77: $45,000	TOTAL: $85,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Luo, H. L.	LERC/Woollam, J. A.	13-Physics

NSG 3150 **University of California - San Diego** **1557**
Analysis of interaction between spacecraft and artificially injected particles

Period	Obligations	
05/01/77-04/30/78	FY77: $89,957	TOTAL: $89,957
Prin Invest	*NASA Tech Officer*	*CASE Category*
Whipple, E. C., Jr	LERC/Purvis, C. K.	39-Env Sci, NEC
Deforest, S. E.	LERC/Stevens, N. J.	

NSG 5089 **University of California - San Diego** **1558**
Present day plate motions

Period	Obligations	
01/01/76-04/30/77	FY77: $85	TOTAL: $27,085
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jordan, T. H.	GSFC/Mead, G. D.	32-Geological Sci

NSG 7027 **University of California - San Diego** **1559**
Orbital geochemical data analysis and synthesis

Period	Obligations	
03/01/74-01/31/78	FY77: $59,812	TOTAL: $280,838
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arnold, J. R.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7100 **University of California - San Diego** **1560**
Infrared continuum observations of solar atmospheric structure

Period	Obligations	
11/14/74-03/31/78	FY77: $36,000	TOTAL: $83,001
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hudson, H. S.	HQ-ST/Bohlin, J. D.	13-Physics

NSG 7102 **University of California - San Diego** **1561**
Research on processes controlling the formation and evolution of the small bodies in the solar system

Period	Obligations	
09/01/74-09/30/77	FY77: $45,500	TOTAL: $150,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Alfven, H.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NSG 7121 **University of California - San Diego** **1562**
Carbonaceous chondrites early irradiation and 244/pu fission records

Period	Obligations	
02/27/75-01/31/78	FY77: $39,792	TOTAL: $89,033
Prin Invest	*NASA Tech Officer*	*CASE Category*
MacDougall, J. D.	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

NSG 7161 **University of California - San Diego** **1563**
Analysis and interpretation of solar X-ray data from OSO-7

Period	Obligations	
07/01/75-09/30/77	FY77: $70,000	TOTAL: $117,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peterson, L. E.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7294 **University of California - San Diego** **1564**
Preparation of a set of sky maps in hard X-rays from OSO-1

Period	Obligations	
10/01/76-09/30/77	FY77: $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peterson, L. E.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NSG 9048 **University of California - San Diego** **1565**
Mechanism of compensation for vestibular lesions and integrative functions in control of equilibrium

Period	Obligations	
01/01/77-04/30/78	FY77: $70,000	TOTAL: $70,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bullock, T. H.	JSC/Homick, J. L.	53-Other Medical

NCA 2-665602 **University of California - San Francisco** **1566**
Circadian chages in adrenal sensitivity

Period	Obligations	
05/01/76-04/30/78	FY77: $15,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dillman, M. S.	ARC/Danellis, J. V.	51-Biology

NCA 2-665701 **University of California - San Francisco** **1567**
Evaluation of endocrinological control of γ-carboxyglutamic acid in bone

Period	Obligations	
09/01/76-12/31/77	FY77: $1,500	TOTAL: $17,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Asling, C. W.	ARC/Callahan, P. X.	51-Biology
	ARC/Ellis, S.	

NCA 2-665703 **University of California - San Francisco** **1568**
In vivo studies of muscle protein degradation under weightlessness

Period	Obligations	
09/01/76-09/30/77	FY77: $3,376	TOTAL: $18,486
Prin Invest	*NASA Tech Officer*	*CASE Category*
Searle, G. L.	ARC/Feller, D. D.	53-Other Medical

NCA 2-665706 **University of California - San Francisco** **1569**
Development of 3-D reconstruction techniques for ultrastructural modeling of basic units of organization in the central nervous system

Period	Obligations	
01/01/77-12/31/77	FY77: $9,200	TOTAL: $9,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rapisardi, S. C.	ARC/Mehler, W. R.	51-Biology

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NCA 2-665707 **University of California - San Francisco** **1570**
Quantitative measurement of right and left ventricular chamber geometry using radioopaque endocardial markers

Period	*Obligations*	
03/01/77-02/28/78	FY77 $5,500	TOTAL: $5,500
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Carlsson, E.	ARC/Sandler, H. ARC/McCutcheon, E. P.	53-Other Medical

NCA 2-665708 **University of California - San Francisco** **1571**
Quantitative determination of diastolic left ventricular properties

Period	*Obligations*	
03/01/77-02/28/78	FY77: $6,000	TOTAL: $6,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Glantz, S. A. Tyberg, J.	ARC/Sandler, H. ARC/McCutcheon, E. P.	53-Other Medical

NCA 2-665709 **University of California - San Francisco** **1572**
Vasopressin and renin release

Period	*Obligations*	
07/01/77-05/31/78	FY77 $4,000	TOTAL: $4,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Ramsay, D. J.	ARC/Keil, L. C.	53-Other Medical

NSG 7151 **University of California - San Francisco** **1573**
Light energy conversion in halobacterium

Period	*Obligations*	
07/01/75-09/30/77	FY77 $55,720	TOTAL: $119,620
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Stoeckenius, W. Bogomolni, R. A. Zier, L. O.	HQ-SB/Young, R. S.	51-Biology

NAS 9-14816 **University of California - Santa Barbara** **1574**
Shuttle earth resources and oceanographic imaging radar (application and research roles)

Period	*Obligations*	
10/13/75-01/16/78	FY77 $24,950	TOTAL: $95,430
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Simonett, D. S.	JSC/Krishen, K.	33-Oceanography

NCA 2-680601 **University of California - Santa Barbara** **1575**
Studies on ionic concentrations and tissue metabolism

Period	*Obligations*	
01/01/76-12/31/77	FY77: $3,000	TOTAL: $6,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Rochelle, R. H.	ARC/Greenleaf, J. E.	51-Biology

NCA 2-680701 **University of California - Santa Barbara** **1576**
Energy dissipation in the moon. Numerical models of star formation

Period	*Obligations*	
11/01/76-11/30/77	FY77 $2,475	TOTAL: $2,475
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Peale, S. J. Boss, A.	ARC/Cassen, P. ARC/Reynolds, R. T.	13-Physics

NCA 2-680702 **University of California - Santa Barbara** **1577**
Properties of the flagellar membrane of chlamydomonas

Period	*Obligations*	
05/01/77-10/31/77	FY77: $7,578	TOTAL: $7,578
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Gibor, A.	ARC/Lanyi, J. K.	51-Biology

NGR 05-010-062 **University of California - Santa Barbara** **1578**
Planetary geophysics

Period	*Obligations*	
03/01/73-09/30/77	FY77: $22,134	TOTAL: $91,558
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Peale, S. J.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci.

NGR 05-010-081 **University of California - Santa Barbara** **1579**
Lunar sample analysis

Period	*Obligations*	
02/01/73-01/31/78	FY77: $78,000	TOTAL: $307,917
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Tilton, G. R.	JSC/Harris, J. W.	32-Geological Sci.

NSG 2222 **University of California - Santa Barbara** **1580**
An investigation of the kinetics for hydrogen chemisorption on iron metal surfaces

Period	*Obligations*	
04/01/77-03/31/78	FY77 $36,474	TOTAL: $36,474
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Shanabarger, M. R.	ARC/Nelson, H. G.	47-Materials Engr.

NSG 5106 **University of California - Santa Barbara** **1581**
Research of ocean color in the Santa Barbara Channel

Period	*Obligations*	
03/01/76-12/31/77	FY77 $9,936	TOTAL: $18,305
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Estes, J. E.	GSFC/Barnes, W.	33-Oceanography

NSG 5155 **University of California - Santa Barbara** **1582**
Remote sensing applications to hydrologic modeling

Period	*Obligations*	
01/17/77-01/16/78	FY77 $49,547	TOTAL: $49,547
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Ozier, J. D. Simonett, D. S. Estes, J. E.	GSFC/Salomonson, V. V. GSFC/Ormsby, J. O.	32-Geological Sci.

NSG 5170 **University of California - Santa Barbara** **1583**
Field sampling and data analysis for radar soil moisture test

Period	*Obligations*	
03/04/77-03/03/78	FY77 $24,854	TOTAL: $24,854
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Estes, J. E. Simonett, D. S.	GSFC/Chang, A. T.	32-Geological Sci.

NSG 9020 **University of California - Santa Barbara** **1584**
Remanent magnetization of lunar samples

Period	Obligations	
10/31/74-01/31/80	FY77: $77,400	TOTAL: $350,757
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fuller, M. D.	JSC/Harris, J. W.	19-Phys Sci, NEC

NGR 05-061-015 **University of California - Santa Cruz** **1585**
Infrared instrumentation

Period	Obligations	
07/06/72-01/31/78	FY77: $38,061	TOTAL: $154,331
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rank, D. M.	HQ-SA/Boggess, N. W. HQ-SA/Roman, N. G.	11-Astronomy

NAS 2-7059 **University of San Francisco** **1586**
Apollo radiation dosimetry

Period	Obligations	
06/14/72-01/31/78	FY77:	TOTAL: $224,418
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V.	ARC/Taketa, S. T. ARC/Tremor, J. W.	13-Physics

NAS 2-9440 **University of San Francisco** **1587**
Study of chemical evolution interactions of metal ions and nucleotides

Period	Obligations	
12/10/76-09/15/77	FY77: $15,021	TOTAL: $15,021
Prin Invest	*NASA Tech Officer*	*CASE Category*
Furst, A. L.	ARC/Lawless, J. G	51-Biology

NAS 2-9504 **University of San Francisco** **1588**
Radiation dosimetry experiment on U.S.S.R./U.S. Kosmos 77 flight

Period	Obligations	
02/16/77-02/15/78	FY77: $91,500	TOTAL: $91,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V.	ARC/Souza, K. A.	13-Physics

NAS 8-26758 **University of San Francisco** **1589**
Study for heavy particle, passive, personnel dosimetry using etched particles

Period	Obligations	
01/21/71-12/31/77	FY77	TOTAL: $92,704
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V.	MSFC/Parnell, T. A. MSFC/Eby, P. B.	13-Physics

NAS 9-12466 **University of San Francisco** **1590**
Dosimetry materials

Period	Obligations	
02/02/72-09/30/77	FY77	TOTAL: $190,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V	JSC/Bailey, J. V	51-Biology

NAS 9-15152 **University of San Francisco** **1591**
Automated analysis system for haze particle trace dosimeters

Period	Obligations	
02/01/77-01/31/79	FY77: $173,607	TOTAL: $173,607
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V.	JSC/Bailey, J. V.	53-Other Medical

NAS 9-15337 **University of San Francisco** **1592**
Definition Spacelab I experiment on high energy particle dosimetry

Period	Obligations	
04/01/77-03/01/78	FY77: $10,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V	JSC/Thirolf, R. G. JSC/Huffstetler, W. J	13-Physics

NSG 2039 **University of San Francisco** **1593**
Research on reactive toxicity of pyrolysis effluents

Period	Obligations	
08/01/74-09/30/78	FY77: $66,301	TOTAL: $293,206
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hilado, C. J. Furst, A. L.	ARC/Kourtides, D. A. ARC/Parker, J. A.	12-Chemistry

NSG 2063 **University of San Francisco** **1594**
Effects of heavy particle radiation of the mammalian brain and related tissues

Period	Obligations	
01/01/75-12/31/77	FY77: $103,800	TOTAL: $297,986
Prin Invest	*NASA Tech Officer*	*CASE Category*
Benton, E. V.	ARC/Miquel, J.	51-Biology

NCA 2-685402 **University of Santa Clara** **1595**
Joint use of specialized resources (law)

Period	Obligations	
07/15/73-12/31/77	FY77: $42,000	TOTAL: $96,600
Prin Invest	*NASA Tech Officer*	*CASE Category*
Alexander, G.	ARC/Glazer, J. H.	79-Soc Sci, NEC

NCA 2-685614 **University of Santa Clara** **1596**
Terminal oxidation in extreme halophilic bacteria

Period	Obligations	
06/01/76-08/31/77	FY77:	TOTAL: $12,090
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tomlinson, G. A.	ARC/Hochstein, L. I.	31-Atmos Sci

NCA 2-685701 **University of Santa Clara** **1597**
Thermal history of the moon and terrestrial planets

Period	Obligations	
09/01/76-08/31/78	FY77:	TOTAL: $7,056
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barker, W. A	ARC/Reynolds, R. T. ARC/Summers, A. L.	32-Geological Sci

NCA 2-685706 **University of Santa Clara** **1598**
The interaction of nucleotides with molybdenum

Period	*Obligations*	
12/01/76-11/30/77	FY77: $12,010	TOTAL: $12,010
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sweeney, M. A	ARC/Lawless, J. G.	51-Biology

NCA 2-685707 **University of Santa Clara** **1599**
Development of two-dimensional energy conservation equations in a mathematical model of the upper ionosphere of Venus

Period	*Obligations*	
06/01/77-05/15/78	FY77: $13,000	TOTAL: $13,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCormick, P. T.	ARC/Whitten, R. C	13-Physics

NCA 2-685708 **University of Santa Clara** **1600**
Kinetic effects of polyribonucleotides on amino acid condensation on hypohydrous clay surfaces

Period	*Obligations*	
06/01/77-05/31/78	FY77: $4,998	TOTAL: $4,998
Prin Invest	*NASA Tech Officer*	*CASE Category*
White, D. H	ARC/Chang, S.	12-Chemistry

NCA 2-685709 **University of Santa Clara** **1601**
Simulation of space flight-induced metabolic changes by undernutrition

Period	*Obligations*	
05/01/77-04/30/78	FY77: $9,958	TOTAL: $9,958
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fast, T.	ARC/Grindeland, R. E ARC/Keil, L. C	51-Biology

NCA 2-685710 **University of Santa Clara** **1602**
Assessment and analysis of image data analysis systems for operational needs for the states of the Pacific Northwest

Period	*Obligations*	
06/01/77-12/31/77	FY77: $9,851	TOTAL: $9,851
Prin Invest	*NASA Tech Officer*	*CASE Category*
Danielson, R. L.	ARC/Wilson, D. E	39-Env Sci, NEC

NCA 2-685711 **University of Santa Clara** **1603**
An evaluation of the effectiveness of communication satellites for the Pacific Northwest land resources inventory project

Period	*Obligations*	
06/01/77-12/01/77	FY77: $7,900	TOTAL: $7,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Healy, T. J.	ARC/Lumb, D. R.	39-Env Sci, NEC

NCA 2-685713 **University of Santa Clara** **1604**
On the polarization of Ne II line radiation in H II regions by the Oppenheimer-Penney mechanism

Period	*Obligations*	
06/16/77-09/16/77	FY77: $6,630	TOTAL: $6,630
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barker, W. A	ARC/Dyal, P.	13-Physics

NCA 2-685714 **University of Santa Clara** **1605**
Central and peripheral mechanisms of temperature regulation

Period	*Obligations*	
06/01/77-05/31/78	FY77: $3,999	TOTAL: $3,999
Prin Invest	*NASA Tech Officer*	*CASE Category*
DEliseu, P. N.	ARC/Williams, B. A.	51-Biology

NGR 05-017-010 **University of Santa Clara** **1606**
Extension of Mitrovics method for the analysis and design of dynamic systems

Period	*Obligations*	
11/01/75-03/31/78	FY77: $24,926	TOTAL: $261,372
Prin Invest	*NASA Tech Officer*	*CASE Category*
Siljak, D. D.	ARC/Doolin, B. F.	49-Engr, NEC

NGR 05-017-027 **University of Santa Clara** **1607**
Planetary geology-stellar evolution

Period	*Obligations*	
03/31/71-03/31/78	FY77: $55,497	TOTAL: $587,304
Prin Invest	*NASA Tech Officer*	*CASE Category*
Greeley, R	ARC/Black, D. C.	32 Geological Sci

NGR 05-017-033 **University of Santa Clara** **1608**
Study of viscous flow fields

Period	*Obligations*	
09/05/72-12/31/77	FY77: $50,000	TOTAL: $252,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cheng, D. Y	ARC/Buell, D. A ARC/Chapman, G. T	41-Aero Engr

NGR 05-017-037 **University of Santa Clara** **1609**
Mapping geology of Mars quadrangle MC-6 Casius

Period	*Obligations*	
01/01/73-11/30/77	FY77: $74,070	TOTAL: $171,652
Prin Invest	*NASA Tech Officer*	*CASE Category*
Greeley, R	HQ-SL/Dwornik, S. E	32-Geological Sci
Guest, J. E	HQ-SL/Wahmann, R	

NSG 2036 **University of Santa Clara** **1610**
Management systems research study

Period	*Obligations*	
07/15/74-09/01/78	FY77: $8,545	TOTAL: $134,697
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bruno, A. V.	ARC/Lile, M	0-Multi-Discip

NSG 2075 **University of Santa Clara** **1611**
Properties of moon and its environment from lunar magnetometer measurements

Period	*Obligations*	
09/01/75-02/28/78	FY77	TOTAL: $81,943
Prin Invest	*NASA Tech Officer*	*CASE Category*
Parkin, C. W	ARC/Dyal, P	13-Physics

NSG 2086 **University of Santa Clara** **1612**
Comparison of finite element & finite difference methods for fluid flow problems

Period	Obligations	
07/23/75-06/30/78	FY77: $15,000	TOTAL: $43,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vinokur, M.	ARC/Steger, J. L.	13-Physics

NSG 7141 **University of Santa Clara** **1613**
Analysis of lunar mare emplacement

Period	Obligations	
05/01/75-02/28/78	FY77: $21,572	TOTAL: $41,572
Prin Invest	*NASA Tech Officer*	*CASE Category*
Greeley, R.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7330 **University of Santa Clara** **614**
Effect of layering on viscous flow of lunar craters

Period	Obligations	
03/01/77-02/28/78	FY77: $25,234	TOTAL: $25,234
Prin Invest	*NASA Tech Officer*	*CASE Category*
Aggarwal, H. R.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

NAS 2-6558 **University of Southern California** **1615**
Pioneer F/G analysis of ultraviolet experiment

Period	Obligations	
09/01/71-09/30/77	FY77: $76,448	TOTAL: $866,653
Prin Invest	*NASA Tech Officer*	*CASE Category*
Judge, D. L.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy

NAS 2-7969 **University of Southern California** **1616**
Pioneer 10 and 11 data analysis of plasma analyzer experiment

Period	Obligations	
07/01/76-09/30/77	FY77: $128,829	TOTAL: $334,526
Prin Invest	*NASA Tech Officer*	*CASE Category*
Intriligator, D. S.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy

NAS 8-28305 **University of Southern California** **1617**
Skylab experiment mixed III-2V crystal growth analysis effort

Period	Obligations	
10/19/72-01/15/76	FY77:	TOTAL: $60,425
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilcox, W. R.	MSFC/Adams, W. R. MSFC/Davidson, M. C.	19-Phys Sci, NEC

NAS 8-29847 **University of Southern California** **1618**
Study of analytics of crystal growth in space

Period	Obligations	
06/05/73-12/17/75	FY77:	TOTAL: $70,030
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilcox, W. R.	MSFC/Ruff, R. C. MSFC/Facemire, B. R.	13-Physics

NAS 9-6164 **University of Southern California** **1619**
Proton accelerator studies

Period	Obligations	
06/01/66-06/01/77	FY77:	TOTAL: $8,004
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	JSC/Unavailable	13-Physics

NASW 2771 **University of Southern California** **1620**
Operation of the Western Research Applications Center

Period	Obligations	
02/01/75-12/31/76	FY77: $32,347	TOTAL: $545,810
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Holley, H. L.	99-Multi-Discip

NASW 3009 **University of Southern California** **1621**
Development and implementation of a minority industrial assistance program

Period	Obligations	
04/01/77-03/31/78	FY77: $70,000	TOTAL: $70,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Gilbert, R.	99-Multi-Discip

NASW 3031 **University of Southern California** **1622**
Operation of NASA Industrial Applications Center

Period	Obligations	
01/01/77-03/31/78	FY77: $341,250	TOTAL: $341,250
Prin Invest	*NASA Tech Officer*	*CASE Category*
Munushian, J. Nilles, J.	HQ-KT/Bivins, R. G. HQ-KT/Voris, R. M.	99-Multi-Discip

NGL 05-018-118 **University of Southern California** **1623**
Advanced communications techniques

Period	Obligations	
10/09/69-07/31/78	FY77:	TOTAL: $130,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Andrews, H. C.	GSFC/Kutz, R. L.	45-Elec Engr

NGR 05-018-178 **University of Southern California** **1624**
Dynamics of rotating-stratified flows with application to the Jovian atmosphere

Period	Obligations	
09/11/72-08/31/78	FY77: $42,449	TOTAL: $239,644
Prin Invest	*NASA Tech Officer*	*CASE Category*
Maxworthy, T.	HQ-SL/Brunk, W. E. HQ-SL/Mitz, M. A.	31-Atmos Sci

NGR 05-018-180 **University of Southern California** **1625**
Photon-molecule interaction studies of the atmospheric gases

Period	Obligations	
08/31/72-12/31/77	FY77: $58,826	TOTAL: $217,854
Prin Invest	*NASA Tech Officer*	*CASE Category*
Judge, D. L.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

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NGR 05-018-181 **University of Southern California** **1626**
Analysis of Pioneer solar wind observations of the interplanetary medium

Period	*Obligations*	
10/25/72-09/30/77	FY77: $11,000	TOTAL: $196,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vasyliunas, V. M	HQ-SG/Schmerling, E. R.	13-Physics

NGR 05-018-185 **University of Southern California** **1627**
Study of the structure of magnetopause using simultaneous OGO-5 magnetic field light

Period	*Obligations*	
06/27/73-06/30/77	FY77	TOTAL: $25,795
Prin Invest	*NASA Tech Officer*	*CASE Category*
Intriligator, D. S	HQ-SA/Calahan, H. D	13-Physics

NSG 1221 **University of Southern California** **1628**
Investigation of jet shear layer mechanisms and their phase relation to radiated sound

Period	*Obligations*	
08/05/75-10/31/77	FY77 $30,003	TOTAL: $60,004
Prin Invest	*NASA Tech Officer*	*CASE Category*
Laufer, J	LARC/Seiner, J. M. LARC/Pao, S. P.	41-Aero Engr

NSG 1401 **University of Southern California** **1629**
Investigation of an improved theory for the analysis of natural and manmade layered structures

Period	*Obligations*	
03/15/77-03/14/78	FY77 $32,197	TOTAL: $32,197
Prin Invest	*NASA Tech Officer*	*CASE Category*
Seide, P.	LARC/Stein, M. LARC/Anderson, M. S	41-Aero Engr

NSG 5108 **University of Southern California** **1630**
Rocket experiments to measure the solar intensity and profile

Period	*Obligations*	
04/01/76-04/30/78	FY77: $105,961	TOTAL: $165,961
Prin Invest	*NASA Tech Officer*	*CASE Category*
Judge, D. L Carlson, R. W.	GSFC/Bissell, E. E HQ-SL/Fellows, R. F.	13-Physics

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NSG 3122 **Colorado School of Mines** **1631**
Determination of the mechanism of influence of organic compounds on the thermal instability of fuels

Period	*Obligations*	
11/01/76-10/31/79	FY77: $74,634	TOTAL: $74,634
Prin Invest	*NASA Tech Officer*	*CASE Category*
Daniel, S. R. Gary, J. H	LERC/Reynolds, T. W	12-Chemistry

NAS 1-14538 **Colorado State University** **1632**
Medium field-of-view sensor definition study for an earth radiation budget satellite system

Period	*Obligations*	
07/26/76-05/10/77	FY77: $15,000	TOTAL: $63,647
Prin Invest	*NASA Tech Officer*	*CASE Category*
VonDerHaar, T. H.	LARC/Cooper, J. E	31-Atmos Sci

NAS 2-6615 **Colorado State University** **1633**
Study plant tumor tissues on clinostats & in space environment

Period	*Obligations*	
09/10/71-06/10/77	FY77:	TOTAL: $163,895
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baker, R.	ARC/Tremor, J. W	59-Life Sci, NEC

NAS 5-22372 **Colorado State University** **1634**
Solar energy microclimate study

Period	*Obligations*	
05/12/75-11/12/76	FY77: $32,827	TOTAL: $94,827
Prin Invest	*NASA Tech Officer*	*CASE Category*
VonDerHaar, T. H Ellis, J. S	GSFC/Thekaekara, M. P.	41-Aero Engr

NAS 5-22959 **Colorado State University** **1635**
Earth radiation budget sensor support

Period	*Obligations*	
01/23/76-01/23/79	FY77: $25,000	TOTAL: $45,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
VonDerHaar, T. H	GSFC/Nelson, D.	39-Env Sci, NEC

NAS 8-31237 **Colorado State University** **1636**
Turbulence model-statistical simulation

Period	*Obligations*	
02/14/75-03/05/76	FY77:	TOTAL: $21,977
Prin Invest	*NASA Tech Officer*	*CASE Category*
Winn, C. B. Johnson, G. R.	MSFC/Cliff, W. C. MSFC/Fichtl, G. H.	46-Mech Engr

NAS 8-31347 **Colorado State University** **1637**
Assessment of geophysical flows for zero-gravity simulation

Period	*Obligations*	
05/01/75-09/30/76	FY77:	TOTAL: $52,529
Prin Invest	*NASA Tech Officer*	*CASE Category*
Winn, C. B Thompson, E. G.	MSFC/Fichtl, G. H MSFC/Camp, D. W.	49-Engr, NEC

NAS 8-31673 **Colorado State University** **1638**
Zero-gravity aerosol behavior

Period	*Obligations*	
09/08/75-01/08/78	FY77 $25,000	TOTAL: $49,878
Prin Invest	*NASA Tech Officer*	*CASE Category*
Edwards, H. W.	MSFC/Fichtl, G. H MSFC/Morgan, S. H	46-Mech Engr

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NAS 8-31688 **Colorado State University** **1639**
Study of zero-gravity two-phase turbulence

Period	Obligations	
11/06/75-11/05/77	FY77: $24,749	TOTAL: $55,549
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sandhorn, V. A.	MSFC/Fichtl, G. H. MSFC/Fowlis, W.	44-Civil Engr

NAS 9-14467 **Colorado State University** **1640**
Modeling of wheat signatures for signature extension

Period	Obligations	
11/15/74-11/14/76	FY77:	TOTAL: $64,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, J. A.	JSC/Barnett, T. L. JSC/Potter, A. E.	39-Env Sci, NEC

NAS 9-14765 **Colorado State University** **1641**
Skylab results

Period	Obligations	
09/01/75-12/31/77	FY77: $2,135	TOTAL: $20,635
Prin Invest	*NASA Tech Officer*	*CASE Category*
Marlatt, W. E.	JSC/Wilmarth, V.	31-Atmos Sci

NCA 2-165701 **Colorado State University** **1642**
Investigations of frequency up-conversion of infrared laser radiation in molecular gases

Period	Obligations	
09/01/76-08/31/77	FY77: $9,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
She, C. Y.	ARC/Billman, K. W.	13-Physics

NGR 06-002-075 **Colorado State University** **1643**
Metabolic effects of artificial environment

Period	Obligations	
10/18/68-12/31/77	FY77: $15,000	TOTAL: $303,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jordan, J. P. Schatte, C. L.	ARC/Holton, E. M.	51-Biology

NGR 06-002-095 **Colorado State University** **1644**
Combustion instability with partial length acoustic lines

Period	Obligations	
12/02/69-09/01/78	FY77: $35,237	TOTAL: $334,760
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mitchell, C. E.	LERC/Priem, R. J.	42-Astro Engr

NGR 06-002-098 **Colorado State University** **1645**
Atmospheric transport processes as evaluated from Nimbus III satellite data

Period	Obligations	
04/13/70-11/30/77	FY77: $31,000	TOTAL: $309,856
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reiter, E. R.	GSFC/Theon, J. S.	31-Atmos Sci

NGR 06-002-102 **Colorado State University** **1646**
Studies of radiation measurements from polar and geosynchronous satellites

Period	Obligations	
09/23/70-11/30/77	FY77: $48,000	TOTAL: $389,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
VonDerHaar, T. H.	GSFC/Curran, R. J.	31-Atmos Sci

NGR 06-002-112 **Colorado State University** **1647**
An experimental investigation of hollow cathode discharge start-up and operation

Period	Obligations	
12/21/70-11/30/77	FY77: $80,569	TOTAL: $381,896
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilbur, P. J. Kaufman, H. R.	LERC/Kerslake, W. R.	46-Mech Engr

NGR 06-002-147 **Colorado State University** **1648**
Theoretical investigations on plasma processes in the Kaufman thruster

Period	Obligations	
04/14/72-10/31/77	FY77: $13,729	TOTAL: $123,129
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilhelm, H. E. Hong, S. H.	LERC/Mantenieks, M. A.	42-Astro Engr

NGR 06-002-159 **Colorado State University** **1649**
Bulk properties of atomic triplet hydrogen & high pressure equation of state for solid hydrogen

Period	Obligations	
12/04/72-10/19/77	FY77: $28,544	TOTAL: $120,309
Prin Invest	*NASA Tech Officer*	*CASE Category*
Etters, R. D	LERC/Brown, G. V.	13-Physics

NGR 06-002-191 **Colorado State University** **1650**
Impact studies on computer needs for a whole earth dynamical model

Period	Obligations	
05/01/74-11/30/77	FY77:	TOTAL: $86,222
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thompson, E. G. Young, C.	GSFC/Carpenter, L. H.	32-Geological Sci

NSG 2232 **Colorado State University** **1651**
Effects of the hypokinetic state on bioenergetic balance using the rat as a model mammalian system

Period	Obligations	
05/01/77-04/30/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jordan, J. P. Schatte, C. L.	ARC/Holton, E. M.	51-Biology

NSG 2253 **Colorado State University** **1652**
Transfer of air from the troposphere to the stratosphere in the vicinity of north polar front jet streams

Period	*Obligations*	
09/01/77-06/30/78	FY77: $5,160	TOTAL: $5,160
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reiter, E. R.	ARC/Shimazaki, T.	31-Atmos Sci

NSG 3011 **Colorado State University** **1653**
Experimental investigations of argon and xenon ion sources

Period	*Obligations*	
07/01/74-07/31/78	FY77: $50,273	TOTAL: $200,960
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaufman, H. R. Wilbur, P. J	LERC/Rawlin, V. K.	42-Astro Engr

NSG 3038 **Colorado State University** **1654**
Plasma interaction between ion thruster and solar array

Period	*Obligations*	
09/01/74-12/31/77	FY77: $14,601	TOTAL: $50,921
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaufman, H. R. Wilbur, P. J.	LERC/Domitz, S.	19-Phys Sci, NEC

NSG 3060 **Colorado State University** **1655**
Experimental measurement of thermal energy charge-transfer cross-sections of interest in rare-gas metal-vapor lasers

Period	*Obligations*	
03/01/75-03/01/78	FY77: $29,990	TOTAL: $81,822
Prin Invest	*NASA Tech Officer*	*CASE Category*
Collins, G. J.	LERC/Chubb, D. L. LERC/Michels, C. J	13-Physics

NSG 3086 **Colorado State University** **1656**
Industrial ion source technology

Period	*Obligations*	
11/15/75-12/15/77	FY77: $50,030	TOTAL: $99,911
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaufman, H. R.	LERC/Theman, E. R. LERC/Terdan, F. F.	13-Physics

NSG 3127 **Colorado State University** **1657**
Effects of turbulence on laminar separation of aerodynamic surfaces such as airfoil blading

Period	*Obligations*	
10/01/76-12/31/77	FY77:	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sadeh, W. Z.	LERC/Sockol, P. M. LERC/Sandercock, D. M.	41-Aero Engr

NSG 3145 **Colorado State University** **1658**
Laboratory simulation of irradiation-induced dielectric breakdown in spacecraft charging

Period	*Obligations*	
04/01/77-03/31/78	FY77: $45,695	TOTAL: $45,695
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yadlowsky, E. J. Churchill, R Stevens, N. J	LERC/Berkopec, F. D.	13-Physics

NSG 3167 **Colorado State University** **1659**
Amorphous silicon by neutralized ion beam sputtering

Period	*Obligations*	
11/01/77-11/01/78	FY77: $32,380	TOTAL: $32,380
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sites, J. R Greenberg, A. S	LERC/Sater, B. L. LERC/Banks, B. A.	13-Physics

NSG 5011 **Colorado State University** **1660**
Satellite support to weather modification

Period	*Obligations*	
06/15/74-01/17/78	FY77: $43,225	TOTAL: $142,299
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cotton, W. R. Grant, L. O VonDerHaar, T. H	GSFC/Adler, R. F.	31-Atmos Sci

NSG 5073 **Colorado State University** **1661**
Project NOWCAST (short term forecasting of weather)

Period	*Obligations*	
12/01/75-06/30/78	FY77: $104,023	TOTAL: $157,648
Prin Invest	*NASA Tech Officer*	*CASE Category*
Marlatt, W. E.	GSFC/Neil, E. A	31-Atmos Sci

NSG 5105 **Colorado State University** **1662**
Aircraft measurements and analysis of severe storms

Period	*Obligations*	
03/01/76-06/30/77	FY77: $62,456	TOTAL: $232,456
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sinclair, P. C.	GSFC/Rados, R. M	31-Atmos Sci

NSG 9037 **Colorado State University** **1663**
Characterization of lunar ferromagnetic phases by effective linewidth method

Period	*Obligations*	
11/01/75-09/30/77	FY77	TOTAL: $15,600
Prin Invest	*NASA Tech Officer*	*CASE Category*
Patton, C. F	JSC/Harris, J. W	13-Physics

NSG 9045 **Colorado State University** **1664**
Effects of heavy ions on optic tissues

Period	*Obligations*	
10/01/76-10/31/77	FY77: $92,159	TOTAL: $92,159
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lett, J. T.	JSC/Hoffman, R. A.	59-Life Sci, NEC

NAS 9-15276 **Fort Lewis College** **1665**
Development of a winter wheat adjustable calendar model

Period	*Obligations*	
02/15/77-02/14/78	FY77: $22,815	TOTAL: $22,815
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baker, J. R.	JSC/Browne, I. D.	13-Physics

NAS 2-8816 **University of Colorado - Boulder** **1666**
Design and development of a Pioneer/Venus orbiting ultraviolet spectrometer

Period	*Obligations*	
04/01/75-08/31/78	FY77: $220,000	TOTAL: $795,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stewart, A. I.	ARC/Sinnott, D. B. ARC/Sperans, J.	19-Phys Sci, NEC

NAS 2-9477 **University of Colorado - Boulder** **1667**
Pioneer/Venus data analysis of the orbiter ultraviolet spectrometer experiment

Period	*Obligations*	
08/30/77-09/30/78	FY77: $70,000	TOTAL: $70,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stewart, I.	ARC/Hall, C. F.	19-Phys Sci, NEC

NAS 5-11405 **University of Colorado - Boulder** **1668**
University of Colorado ultraviolet nitric oxide experiment for atmosphere Explorer

Period	*Obligations*	
03/17/71-09/30/79	FY77: $33,740	TOTAL: $960,785
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stewart, A. I.	GSFC/Spencer, N. W. GSFC/Kupperian, J. E., Jr.	31-Atmos Sci

NAS 5-20914 **University of Colorado - Boulder** **1669**
ERTS data follow-on investigation

Period	*Obligations*	
02/28/75-03/28/78	FY77	TOTAL: $82,035
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ives, J. D.	GSFC/Broderick, J. C.	32-Geological Sci

NAS 5-20948 **University of Colorado - Boulder** **1670**
ERTS follow-on investigation

Period	*Obligations*	
02/20/75-11/20/76	FY77	TOTAL: $150,613
Prin Invest	*NASA Tech Officer*	*CASE Category*
Krebs, P.	GSFC/Szajna, E. F.	59-Life Sci, NEC

NAS 5-22409 **University of Colorado - Boulder** **1671**
Reduction and analysis of data from the OSO-I high resolution ultraviolet spectrometer experiment

Period	*Obligations*	
06/26/75-09/30/79	FY77: $291,000	TOTAL: $1,233,126
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bruner, E. C., Jr.	GSFC/Westrom, C.	31-Atmos Sci

NAS 5-22833 **University of Colorado - Boulder** **1672**
Theoretical calculations of spectral features in the expanding envelopes of early-type stars

Period	*Obligations*	
11/03/75-12/03/77	FY77: $20,000	TOTAL: $41,780
Prin Invest	*NASA Tech Officer*	*CASE Category*
Conti, P. S.	GSFC/Underhill, A. B.	11-Astronomy

NAS 5-23274 **University of Colorado - Boulder** **1673**
Development of models for physical properties of stellar chromospheres

Period	*Obligations*	
08/01/73-10/01/78	FY77:	TOTAL: $64,528
Prin Invest	*NASA Tech Officer*	*CASE Category*
Linsky, J. L.	GSFC/Boggess, A.	11-Astronomy

NAS 5-23771 **University of Colorado - Boulder** **1674**
Design study of radio physics experiment preamplifiers

Period	*Obligations*	
10/18/76-12/30/76	FY77: $3,000	TOTAL: $3,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Warwick, J. W.	GSFC/Alexander, J. K.	11-Astronomy

NAS 5-23808 **University of Colorado - Boulder** **1675**
AE-E backscatter ultraviolet experiment short term data reduction and analysis

Period	*Obligations*	
11/22/76-12/21/77	FY77: $54,663	TOTAL: $54,663
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stewart, A. I.	GSFC/Corrigan, J. P.	31-Atmos Sci

NAS 8-31378 **University of Colorado - Boulder** **1676**
Study of the solar corona using radio observations and Skylab observations

Period	*Obligations*	
05/20/75-06/30/76	FY77	TOTAL: $29,990
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dulk, G. A.	MSFC/Bass, B. G. MSFC/Haggard, M.	13-Physics

NAS 8-31958 **University of Colorado - Boulder** **1677**
Study of geophysical fluid dynamics with electro-hydrodynamics polarization forces

Period	*Obligations*	
03/26/76-11/30/77	FY77: $58,000	TOTAL: $90,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Toomre, J. Hart, J. F.	MSFC/Jex, D. MSFC/Fichtl, G. H.	39-Env Sci, NEC

NAS 8-32364 **University of Colorado - Boulder** **1678**
Study of the solar corona using radio observations and Skylab observations

Period	*Obligations*	
02/01/77-01/31/78	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dulk, G. A.	MSFC/Bass, B. G.	11-Astronomy

NASW 2913 **University of Colorado - Boulder** **1679**
Construction and evaluation of a photon counting imaging detector using microchannel plates

Period	Obligations	
04/21/76-10/20/76	FY77:	TOTAL: $35,615
Prin Invest	*NASA Tech Officer*	*CASE Category*
Laurence, G. M.	HQ-SA/Rosendhal, J. D. HQ-SA/Roman, N. G.	11-Astronomy

NGL 06-003-052 **University of Colorado - Boulder** **1680**
Theoretical and experimental research program in physics of planetary atmospheres

Period	Obligations	
06/28/66-06/30/79	FY77: $348,899	TOTAL: $3,899,247
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barth, C. A.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NGL 06-003-057 **University of Colorado - Boulder** **1681**
Basic research in solar physics

Period	Obligations	
09/05/67-11/30/77	FY77: $115,000	TOTAL: $893,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cooper, J. Linsky, J. L.	HQ-ST/Timothy, A. F.	13-Physics

NGL 06-003-064 **University of Colorado - Boulder** **1682**
Rocket research program in the ultraviolet airglow and aurora of planetary atmospheres

Period	Obligations	
11/30/67-08/31/77	FY77.	TOTAL: $1,289,122
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barth, C. A.	HQ-SL/Fellows, R. F.	31-Atmos Sci

NGL 06-003-200 **University of Colorado - Boulder** **1683**
Application of space technology to practical problems such as those currently facing the mountain sections of the State of Colorado

Period	Obligations	
07/11/72-04/31/80	FY77: $100,000	TOTAL: $625,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ives, J. D.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NGR 06-003-069 **University of Colorado - Boulder** **1684**
Solar physics research

Period	Obligations	
11/29/67-04/30/77	FY77	TOTAL: $1,142,838
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barth, C. A.	HQ-ST/Timothy, A. F.	11-Astronomy

NGR 06-003-127 **University of Colorado - Boulder** **1685**
Data reduction-coordinated experiments

Period	Obligations	
08/18/69-09/30/77	FY77:	TOTAL: $881,906
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barth, C. A.	HQ-SL/Fellows, R. F	31-Atmos Sci

NGR 06-003-176 **University of Colorado - Boulder** **1686**
Rocket research program in stellar ultraviolet astronomy

Period	Obligations	
12/29/71-07/31/78	FY77: $66,991	TOTAL: $353,246
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lillie, C. F.	GSFC/Bissell, E. E. HQ-SA/Rosendahl, J. D.	11-Astronomy

NGR 06-003-179 **University of Colorado - Boulder** **1687**
OAO-II data analysis program

Period	Obligations	
06/07/71-03/31/78	FY77:	TOTAL: $55,600
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lillie, C. F.	HQ-SA/Roman, N. G.	11-Astronomy

NGR 06-003-181 **University of Colorado - Boulder** **1688**
Lunar sample analysis

Period	Obligations	
06/24/71-01/31/78	FY77: $27,200	TOTAL: $160,370
Prin Invest	*NASA Tech Officer*	*CASE Category*
Larson, E. E.	JSC/Harris, J. W.	13-Physics

NGR 06-003-199 **University of Colorado - Boulder** **1689**
Geologic analysis of Martian surface features from Mariner 9 photography as a basis for systematic geologic mapping of Mars

Period	Obligations	
05/24/72-10/31/76	FY77:	TOTAL: $32,842
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peterson, J. E.	HQ-SL/Dwornik, S. E. HQ-SL/Holt, H. E.	32-Geological Sci

NGR 06-003-208 **University of Colorado - Boulder** **1690**
Energy transfer in isotropic turbulence

Period	Obligations	
09/05/72-09/30/77	FY77. $10,000	TOTAL: $76,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Uberoi, M. S.	LERC/Deissler, R. G.	41-Aero Engr

NGR 06-003-215 **University of Colorado - Boulder** **1691**
Analysis of satellite data from the magnetosphere and comparison with ground-based data

Period	Obligations	
07/01/73-10/31/76	FY77.	TOTAL: $2[illegible]7
Prin Invest	*NASA Tech Officer*	*CASE Category*
Speiser, T. W	HQ-SA/Mitchell, J. L	13-Physics

NSG 1213 **University of Colorado - Boulder** **1692**
Design of noninteracting flight control systems in the presence of large parameter variations and disturbances

Period	Obligations	
07/01/75-11/30/77	FY77: $23,870	TOTAL: $43,856
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wang, S. H	LARC/Schy, A. A. LARC/Hamer, H. A	45-Elec Engr

NSG 2128 **University of Colorado - Boulder** **1693**
Self-synchronizing schlieren photography and interferometry for the visualization of unsteady transonic flows

Period	Obligations	
12/01/75-01/31/78	FY77: $19,990	TOTAL: $37,758

Prin Invest	NASA Tech Officer	CASE Category
Kadlec, R. A.	ARC/Davis, S. S. ARC/Chapman, G. T.	41-Aero Engr

NSG 2248 **University of Colorado - Boulder** **1694**
Heterogeneous chemistry: Association reaction, cluster formation, and surface phenomena

Period	Obligations	
07/01/77-06/30/78	FY77: $23,713	TOTAL: $23,713

Prin Invest	NASA Tech Officer	CASE Category
Castleman, A. W.	ARC/Whitten, R. C.	12-Chemistry

NSG 5098 **University of Colorado - Boulder** **1695**
Copernicus observations of OE and OEF stars

Period	Obligations	
03/01/76-09/30/77	FY77:	TOTAL: $7,979

Prin Invest	NASA Tech Officer	CASE Category
Conti, P. S.	GSFC/Kupperian, J. E.	11-Astronomy

NSG 5103 **University of Colorado - Boulder** **1696**
Rocket research in the ultraviolet airglow and aurora of planetary atmospheres

Period	Obligations	
02/01/76-03/31/78	FY77: $199,994	TOTAL: $349,994

Prin Invest	NASA Tech Officer	CASE Category
Barth, C. A. Kelly, K. K. Rottman, G. T.	GSFC/Bissell, F. F. HQ-SL/Fellows, R. F.	19-Phys Sci, NEC

NSG 5124 **University of Colorado - Boulder** **1697**
Investigation of photon-counting imaging detector for space telescope

Period	Obligations	
09/15/76-01/15/78	FY77: $35,063	TOTAL: $128,015

Prin Invest	NASA Tech Officer	CASE Category
Lawrence, G. M.	GSFC/Kelsall, T.	45-Elec Engr

NSG 5147 **University of Colorado - Boulder** **1698**
Study of mass flow in the massive spectroscopic binary

Period	Obligations	
01/01/77-12/31/77	FY77: $1,300	TOTAL: $1,300

Prin Invest	NASA Tech Officer	CASE Category
Barlow, M. J.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5153 **University of Colorado - Boulder** **1699**
Research of observed and theoretical variations of atmospheric ozone

Period	Obligations	
01/17/77-01/16/78	FY77: $64,808	TOTAL: $64,808

Prin Invest	NASA Tech Officer	CASE Category
London, J.	GSFC/Reber, C. A.	31-Atmos Sci

NSG 5178 **University of Colorado - Boulder** **1700**
Rocket research in solar ultraviolet spectroscopy

Period	Obligations	
06/01/77-05/31/78	FY77: $115,208	TOTAL: $115,208

Prin Invest	NASA Tech Officer	CASE Category
Rottman, G. T. Chipman, E. G. Orrall, F.	GSFC/Bissell, E. E. HQ-ST/Timothy, A. F.	13-Physics

NSG 5211 **University of Colorado - Boulder** **1701**
A study of the flare star proxima Centauri

Period	Obligations	
10/01/77-09/30/78	FY77: $1,100	TOTAL: $1,100

Prin Invest	NASA Tech Officer	CASE Category
Linsky, J. L.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7128 **University of Colorado - Boulder** **1702**
Studies of X-ray ultraviolet and optical emission from galactic X-ray sources

Period	Obligations	
03/01/75-05/31/78	FY77: $23,000	TOTAL: $63,550

Prin Invest	NASA Tech Officer	CASE Category
McCray, R.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NSG 7130 **University of Colorado - Boulder** **1703**
OSO-I guest investigator program

Period	Obligations	
04/01/75-09/30/77	FY77: $46,286	TOTAL: $126,286

Prin Invest	NASA Tech Officer	CASE Category
Hansen, E.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7165 **University of Colorado - Boulder** **1704**
Theoretical studies of the solar corona and chromosphere

Period	Obligations	
07/01/75-08/31/78	FY77: $49,000	TOTAL: $84,000

Prin Invest	NASA Tech Officer	CASE Category
Chipman, E. G.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7166 **University of Colorado - Boulder** **1705**
Physical mechanisms linking solar activity and/or geomagnetic disturbance with the large scale atmospheric circulation

Period	Obligations	
07/01/75-06/30/77	FY77:	TOTAL: $15,000

Prin Invest	NASA Tech Officer	CASE Category
Roberts, W. O.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7224 **University of Colorado - Boulder** **1706**
Observed and theoretical variations of atmospheric ozone

Period	Obligations	
05/01/76-01/31/77	FY77:	TOTAL: $39,915

Prin Invest	NASA Tech Officer	CASE Category
London, J.	HQ-SU/King, J. J., Jr. HQ-SU/Reed, L. J.	31-Atmos Sci

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NSG 7231 **University of Colorado - Boulder** **1707**
A rocket program to measure minor neutral species in the earth's atmosphere from 30 km to 110 km

Period	*Obligations*	
04/01/76-11/30/77	FY77: $100,007	TOTAL: $200,007
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thomas, R. J.	HQ-SU/Seals, R. K., Jr HQ-SU/Tilford, S. G.	31-Atmos Sci

NSG 7287 **University of Colorado - Boulder** **1708**
Study of the solar corona using radio observation

Period	*Obligations*	
07/01/76-09/30/77	FY77: $10,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dulk, G. A.	HQ-ST/Bohlin, D. J. HQ-ST/Timothy, A. F.	13-Physics

NSG 7291 **University of Colorado - Boulder** **1709**
Research in solar physics with emphasis on empirical non-equilibrium thermodynamics

Period	*Obligations*	
09/01/76-08/31/77	FY77 $21,000	TOTAL: $21,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thomas, R. N.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7319 **University of Colorado - Boulder** **1710**
Nutation and polar motion of the earth

Period	*Obligations*	
03/01/77-02/28/78	FY77 $34,610	TOTAL: $34,610
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, M. L.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7344 **University of Colorado - Boulder** **1711**
Construction of a three-wavelength electromagnetic distance-measuring system

Period	*Obligations*	
05/01/77-04/30/79	FY77 $100,000	TOTAL: $100,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Levine, J.	HQ-SL/Strickland, A. L.	13-Physics

NSG 9036 **University of Colorado - Boulder** **1712**
Correlation of strength with q and velocity in lunar rock under simulated conditions

Period	*Obligations*	
11/01/75-01/31/78	FY77 $81,697	TOTAL: $174,464
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spetz, H. A.	JSC/Harris, J. W.	32-Geological Sci

NAS 1-14929 **University of Denver** **1713**
Stratospheric aerosol and gas experiment

Period	*Obligations*	
07/18/77-09/30/79	FY77 $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murcray, D. G.	LARC/McMaster, L. R. LARC/McCormick, M. P.	31-Atmos Sci

NAS 2-8200 **University of Denver** **1714**
Detectability of atmospheric species

Period	*Obligations*	
04/01/74-12/31/77	FY77 $169,988	TOTAL: $460,984
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murcray, D. G.	ARC/Munoz, R. M.	13-Physics

NAS 5-22981 **University of Denver** **1715**
Measurement of soft energetic X-rays

Period	*Obligations*	
02/18/76-12/31/77	FY77 $23,175	TOTAL: $40,550
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barcus, J. R.	GSFC/Goldberg, R.	19-Phys Sci, NEC

NAS 5-23190 **University of Denver** **1716**
Construction of a 31.4 GHz parametric amplifier

Period	*Obligations*	
03/16/73-11/30/77	FY77	TOTAL: $16,972
Prin Invest	*NASA Tech Officer*	*CASE Category*
Edrich, J.	GSFC/Hobbs, R. W.	13-Physics

NAS 9-15206 **University of Denver** **1717**
Hybridization of biomedical circuitry

Period	*Obligations*	
01/01/77-12/31/77	FY77 $59,748	TOTAL: $59,748
Prin Invest	*NASA Tech Officer*	*CASE Category*
Venditti, F. P.	JSC/Booher, C. R.	45-Elec Engr

NASW 2766 **University of Denver** **1718**
Program for transfer research and impact studies

Period	*Obligations*	
02/01/75-01/31/76	FY77	TOTAL: $311,859
Prin Invest	*NASA Tech Officer*	*CASE Category*
Freeman, J. E.	HQ-KT/Ault, L. A.	99-Multi-Discip

NASW 2892 **University of Denver** **1719**
Collection and analysis of information relating to technology transfer and application

Period	*Obligations*	
02/01/76-01/31/77	FY77	TOTAL: $350,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Johnson, E. D.	HQ-KT/Ault, L. A. HQ-KT/Orrick, D. W.	99-Multi-Discip

NASW 2992 **University of Denver** **1720**
Operational test of data flagging and tagging in NASA's STDN facility

Period	*Obligations*	
10/13/76-11/12/77	FY77 $50,000	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Hargrave, C. HQ-KT/Wente, V. A.	22 Computer Sci

COLORADO (Continued)

NASW 3021 — **University of Denver** — **1721**

Collection and analysis of information relating to technology transfer and application

Period	Obligations	
02/01/77-01/31/78	FY77. $300,000	TOTAL $300,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Ault, L. A	99-Multi-Discip

NGR 06-004-058 — **University of Denver** — **1722**

Study of hydromagnetic disturbances in the geomagnetic field at satellite altitudes

Period	Obligations	
05/02/68-04/30/77	FY77:	TOTAL $138,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Patel, V. L.	HQ-ST/Schmerling, E. R.	13-Physics

NGR 06-004-060 — **University of Denver** — **1723**

Study of physical processes which govern the dynamics of geomagnetically trapped radiation

Period	Obligations	
05/08/68-05/31/78	FY77 $35,000	TOTAL $250,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Roederer, J. G.	HQ-ST/Taylor, W. W. HQ-ST/Schmerling, E. R.	13-Physics

NSG 1333 — **University of Denver** — **1724**

Measurement of solar spectra covering the region between 3500A and 7000A

Period	Obligations	
09/07/76-10/06/77	FY77:	TOTAL: $40,625
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murcray, D. G.	LARC/McCormick, M. P.	31-Atmos Sci

NSG 1405 — **University of Denver** — **1725**

Theoretical simulations of solar spectra in the middle ultraviolet and visible for atmospheric trace constituents measurements

Period	Obligations	
03/15/77-03/14/78	FY77 $38,492	TOTAL $38,492
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goldman, A.	LARC/McCormick, M. P. LARC/Goad, J. H.	31-Atmos Sci

NSG 1432 — **University of Denver** — **1726**

Ground monitoring of atmospheric constituents by high resolution infrared solar spectroscopy

Period	Obligations	
07/11/77-07/10/78	FY77 $100,000	TOTAL $100,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murcray, D. G.	LARC/Hoell, J. M. LARC/Russell, J. M. III	39-Env Sci, NEC

NSG 1439 — **University of Denver** — **1727**

An attempt to measure stratospheric constituents by means of solar occultation measurements in region 0.300um-0.310um

Period	Obligations	
07/21/77-04/20/78	FY77. $35,452	TOTAL: $35,452
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murcray, D. G.	LARC/McCormick, M. P. LARC/Goad, J. H.	31-Atmos Sci

NSG 5135 — **University of Denver** — **1728**

Research of ultraviolet light and spectrum variations of twelve and sixteen lacertae

Period	Obligations	
11/15/76-11/14/77	FY77 $9,908	TOTAL: $9,908
Prin Invest	*NASA Tech Officer*	*CASE Category*
Everhart, E.	GSFC/Kuppenian, J. E., Jr.	11-Astronomy

NSG 7271 — **University of Denver** — **1729**

An investigation of the variability in the stratospheric dust layer as related to the Fuego volcanic event

Period	Obligations	
09/01/76-02/30/78	FY77.	TOTAL: $54,094
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fernald, F. G.	HQ-SU/Reed, E. I. LARC/McCormick, M. P.	31-Atmos Sci

NSG 7354 — **University of Denver** — **1730**

Measurements of the stratospheric distribution of several constituents of interest in the photochemistry of the ozone layer as part of STRATCOM VIII

Period	Obligations	
06/01/77-05/31/78	FY77. $44,595	TOTAL. $44,595
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murcray, D. G.	HQ-SU/Seals, R. K., Jr. HQ-SU/Tilford, S. G.	31-Atmos Sci

NSG 806 — **University of Southern Colorado** — **1731**

Environmental stress cracking of polymers

Period	Obligations	
10/01/76-12/15/77	FY77	TOTAL. $29,296
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mahan, K. I.	KSC/Bryan, C. J.	12-Chemistry

NSG 2058 — **University of Southern Colorado** — **1732**

Technology research for strapdown inertial experiments

Period	Obligations	
07/15/74-10/01/77	FY77 $65,002	TOTAL $178,296
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jenkins, R.	ARC/Hruby, R. J.	41-Aero Engr

NSG 9051 — **University of Southern Colorado** — **1733**

Electron microprobe study of lunar and planetary zoned plagioclase feldspars

Period	Obligations	
02/01/77-01/31/78	FY77 $25,000	TOTAL $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, R. K.	JSC/Lofgren, G.	19-Phys Sci, NEC

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NGR 07-010-002 **Fairfield University** **1734**
Investigation of energy deposition processes in the upper atmosphere, and the interaction between the mesosphere and the thermosphere

Period	Obligations	
04/24/68-09/30/78	FY77:	TOTAL: $64,431
Prin Invest	*NASA Tech Officer*	*CASE Category*
McElaney, J. H.	GSFC/Heath, D. F.	31-Atmos Sci
Khadgavi, A.		

NAS 5-22539 **University of Connecticut** **1735**
Regional dissemination center operations support

Period	Obligations	
07/01/75-12/31/76	FY77:	TOTAL: $505,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilde, D. U.	GSFC/Friedman, D. S.	99-Multi-Discip

NASW 3059 **University of Connecticut** **1736**
Operation of an industrial applications center

Period	Obligations	
01/01/77-12/31/77	FY77: $331,900	TOTAL: $331,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilde, D. U.	HQ-KT/Bivins, R. G.	99-Multi-Discip

NSG 2155 **University of Connecticut** **1737**
Interactive input system and 3-D graphics output study

Period	Obligations	
05/01/76-08/31/77	FY77:	TOTAL: $18,002
Prin Invest	*NASA Tech Officer*	*CASE Category*
White, P. R.	ARC/Gregory, T. J.	41-Aero Engr
	ARC/Carmichael, R. L.	

NSG 5075 **University of Connecticut** **1738**
Modelling the terrestrial hydrology of the global atmosphere

Period	Obligations	
08/17/75-11/30/77	FY77: $14,670	TOTAL: $99,580
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bock, P.	GSFC/Halem, M.	31-Atmos Sci
Lin, J. D.		

NSG 5179 **University of Connecticut** **1739**
Research of the shuttle assisted hydrology program

Period	Obligations	
06/01/77-10/15/77	FY77: $14,353	TOTAL: $14,353
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bock, P.	GSFC/Salomonson, V. V.	
	GSFC/Rango, A.	32-Geological Sci

NGL 07-004-005 **Yale University** **1740**
Low-power, low-speed data storage and processing equipment

Period	Obligations	
01/01/71-08/31/79	FY77: $73,856	TOTAL: $806,499
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barker, R. C.	GSFC/Schaefer, D. H.	45-Elec Engr

NGL 07-004-043 **Yale University** **1741**
Chemical reactions in the electron-volt region

Period	Obligations	
10/26/65-09/30/79	FY77: $44,000	TOTAL: $495,677
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cross, R. J., Jr.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

NGR 07-004-009 **Yale University** **1742**
Determination & analysis of properties & characteristics of extremely small free-living self-replicating cells

Period	Obligations	
11/01/61-10/31/77	FY77:	TOTAL: $316,708
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morowitz, H. J.	HQ-SB/Young, R. S.	51-Biology

NGR 07-004-166 **Yale University** **1743**
Nonhomogeneous accumulation origin of pallasites and its bearing on models of lunar and planetary formation

Period	Obligations	
06/15/73-02/28/77	FY77:	TOTAL: $37,182
Prin Invest	*NASA Tech Officer*	*CASE Category*
Turekian, K. K.	HQ-SL/Williams, R. J.	32-Geological Sci

NSG 400 **Yale University** **1744**
Research of thermal gradient and heat flow associated with earths crust and lunar surface

Period	Obligations	
04/25/63-09/30/78	FY77:	TOTAL: $15,849
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clark, S. P., Jr.	HQ-SL/Unavailable	32-Geological Sci

NSG 2185 **Yale University** **1745**
Early detection of acute respiratory infections

Period	Obligations	
10/01/76-09/30/78	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Evans, A. S.	ARC/Mandel, A. D.	52-Clinical Med
Kraus, G.		

NSG 3107 **Yale University** **1746**
Deposition of condensible impurities on surfaces immersed in hot gases

Period	Obligations	
07/15/76-07/14/78	FY77 $29,992	TOTAL: $59,985
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rosner, D. E.	LERC/Fryburg, G. C.	47-Materials Engr
	LERC/Kohl, F. J.	

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NSG 7290 **Yale University** **1747**
Membranes and circadian rhythms in plants

Period	Obligations	
10/01/76-09/30/77	FY77: $39,420	TOTAL: $39,420
Prin Invest	*NASA Tech Officer*	*CASE Category*
Galston, A. W.	HQ-SB/Halstead, T. W. HQ-SB/Young, R. S.	51-Biology

DELAWARE

NGR 08-002-005 **Delaware State College** **1748**
Research on the photo detachment cross section and threshold energy of negative ions in carbon dioxide

Period	Obligations	
03/16/73-09/30/76	FY77:	TOTAL: $36,017
Prin Invest	*NASA Tech Officer*	*CASE Category*
Helmy, E. M. Woo, S. B.	GSFC/Aikin, A. C.	13-Physics

NAS 5-20983 **University of Delaware** **1749**
ERTS data follow-on investigation

Period	Obligations	
03/05/75-12/24/77	FY77: $10,500	TOTAL: $62,190
Prin Invest	*NASA Tech Officer*	*CASE Category*
Klemas, V.	GSFC/Oseroff, H.	33-Oceanography

NAS 6-2820 **University of Delaware** **1750**
Measurement of ocean surface microstructure in a wind generated wave field

Period	Obligations	
03/28/77-03/27/78	FY77: $13,999	TOTAL: $13,999
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wu, J.	WFC/Huang, N. E. WFC/Parsons, C. L.	33-Oceanography

NSG 1149 **University of Delaware** **1751**
Determination of spectral reflectance signatures of coastal pollutants

Period	Obligations	
02/10/75-12/08/77	FY77: $2,688	TOTAL: $35,181
Prin Invest	*NASA Tech Officer*	*CASE Category*
Klemas, V. Philpot, W.	LARC/Bowker, D. E. LARC/Pearson, A. O.	39-Env Sci, NEC

NSG 1304 **University of Delaware** **1752**
Damage repair technology in composite materials

Period	Obligations	
05/01/76-04/30/78	FY77: $60,610	TOTAL: $92,444
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pipes, R. B. Daugherty, R. L.	LARC/Deaton, J. W. LARC/Hoffman, E. L.	46-Mech Engr

NSG 1368 **University of Delaware** **1753**
Thermal environment effects on structures of composite materials

Period	Obligations	
01/01/77-12/31/77	FY77: $10,575	TOTAL: $10,575
Prin Invest	*NASA Tech Officer*	*CASE Category*
Daugherty, R. L. Pipes, R. B. Vinson, J. R.	LARC/Cooper, P. A.	41-Aero Engr

NSG 1398 **University of Delaware** **1754**
Definition of an operational system for monitoring ocean waste disposal in the New York Bight

Period	Obligations	
03/01/77-02/28/78	FY77: $3,630	TOTAL: $3,630
Prin Invest	*NASA Tech Officer*	*CASE Category*
Klemas, V.	LARC/Bowker, D. E. LARC/Pearson, A. O.	39-Env Sci, NEC

NSG 1409 **University of Delaware** **1755**
Elevated temperature bolted joint test technology in composite materials

Period	Obligations	
04/01/77-12/31/77	FY77: $31,760	TOTAL: $31,760
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pipes, R. B. Chou, T. Vinson, J. R.	LARC/Cooper, P. A.	42-Astro Engr

NSG 1433 **University of Delaware** **1756**
Satellite surveillance of coastal environment and monitoring of sludge dump sites

Period	Obligations	
09/01/77-11/30/78	FY77: $19,892	TOTAL: $19,892
Prin Invest	*NASA Tech Officer*	*CASE Category*
Klemas, V. Philpot, W.	LARC/Bowker, D. E. LARC/Pearson, A. O.	39-Env Sci, NEC

NSG 5144 **University of Delaware** **1757**
Ultraviolet studies of heavy-element abundances in stars

Period	Obligations	
12/01/76-11/30/77	FY77: $1,900	TOTAL: $1,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shipman, H. L.	GSFC/Kunperian, J. E., Jr	11-Astronomy

NSG 6015 **University of Delaware** **1758**
Voice response systems

Period	Obligations	
09/01/76-08/31/77	FY77:	TOTAL: $10,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
Robinson, D. M.	WFC/Parker, L. C. WFC/Savage, T. J., Jr.	45-Elec Engr

DISTRICT OF COLUMBIA

NSG 7274 **The American University** **1759**
Natural radio source occultation by planetary environments

Period	Obligations	
08/01/76-07/31/77	FY77: $4,887	TOTAL: $4,887
Prin Invest	*NASA Tech Officer*	*CASE Category*
Prakash, A.	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy

NGR 09-005-063 **Catholic University** **1760**
Interaction of the solar wind with the moon

Period	Obligations	
04/15/69-05/30/78	FY77: $25,000	TOTAL: $204,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Whang, Y. C.	HQ-ST/Taylor, W. W. HQ-ST/Schmerling, E. R.	13-Physics

NGR 09-005-099 **Catholic University** **1761**
Experimental study of the structure of turbulence with intermediate range of Reynolds number

Period	Obligations	
09/19/72-12/01/77	FY77: $10,000	TOTAL: $35,840
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ling, S. C.	LERC/Deissler, R. G.	41-Aero Engr

NGR 09-005-103 **Catholic University** **1762**
Kinetics and mechanism of the reactions of O(3p) and H atoms and Ch3Cn and other nitriles

Period	Obligations	
07/01/73-09/30/76	FY77:	TOTAL: $34,074
Prin Invest	*NASA Tech Officer*	*CASE Category*
Timmons, R. B.	GSFC/Stief, L. J.	12-Chemistry

NSG 5066 **Catholic University** **1763**
Research in solar hard X-rays and gamma-rays

Period	Obligations	
05/01/75-04/30/78	FY77: $31,596	TOTAL: $56,421
Prin Invest	*NASA Tech Officer*	*CASE Category*
Werntz, C.	GSFC/Dennis, B. R. GSFC/Maran, S. P.	13-Physics

NSG 5107 **Catholic University** **1764**
Research of ion resonance spectra

Period	Obligations	
04/01/76-03/31/77	FY77:	TOTAL: $9,936
Prin Invest	*NASA Tech Officer*	*CASE Category*
Major, F. G.	GSFC/Reinhardt, V. S.	13-Physics

NSG 5111 **Catholic University** **1765**
Research of properties of material in the submillimeter wave region

Period	Obligations	
09/01/76-08/31/78	FY77: $50,647	TOTAL: $70,647
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lally, J. Meister, R.	GSFC/McAvoy, N. GSFC/McElroy, J. H.	13-Physics

NSG 5173 **Catholic University** **1766**
Atom-molecule reactions of chemical importance in the stratosphere

Period	Obligations	
06/01/77-05/31/78	FY77: $26,850	TOTAL: $26,850
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hunt, J. B.	GSFC/Payne, W. A.	31-Atmos Sci

NAS 1-14605 **George Washington University** **1767**
Experimental and analytical engineering and applied science support of Langley Research Center

Period	Obligations	
09/02/76-09/01/81	FY77: $62,629	TOTAL: $75,189
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liebowitz, H. Whitesides, J. L.	LARC/Duberg, J. E LARC/Erickson, W. D.	41-Aero Engr

NAS 5-23809 **George Washington University** **1768**
Microwave sensing of snow cover wetness

Period	Obligations	
11/26/76-11/26/77	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lang, R. H.	GSFC/Levine, D. M	19-Phys Sci, NEC

NASW 2768 **George Washington University** **1769**
Operation of a scientific communication system for planetary quarantine

Period	Obligations	
01/01/75-12/31/75	FY77	TOTAL: $48,538
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-SB/Young, R. S.	59-Life Sci, NEC

NASW 2890 **George Washington University** **1770**
Operation of a scientific communication system for planetary quarantine

Period	Obligations	
01/01/76-01/15/77	FY77:	TOTAL: $58,633
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-SB/Young, R. S	75-Political Sci

NASW 3029 **George Washington University** **1771**
Operation of a scientific communication system for planetary quarantine

Period	Obligations	
01/16/77-12/31/77	FY77: $60,000	TOTAL: $60,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Head, M. C.	HQ-SB/Halstead, T. W.	75-Political Sci

NGL 09-010-053 **George Washington University** **1772**
Research in space-related areas in engineering and applied science

Period	Obligations	
12/18/68-08/31/79	FY77: $50,000	TOTAL: $1,150,000

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Duberg, J. E.	49-Engr, NEC
	LARC/Erickson, W. D	

NGR 09-010-064 **George Washington University** **1773**
Research in acoustics at the NASA Langley Research Center

Period	Obligations	
01/29/70-01/31/78	FY77: $144,659	TOTAL: $1,327,677

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Margolis, K.	41-Aero Engr

NGR 09-010-074 **George Washington University** **1774**
Programs of research in flight sciences

Period	Obligations	
04/01/71-05/31/78	FY77: $168,000	TOTAL: $1,009,600

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Mulac, R. W.	41-Aero Engr

NGR 09-010-078 **George Washington University** **1775**
Research programs in structures and dynamics

Period	Obligations	
01/06/72-11/30/77	FY77: $175,000	TOTAL: $926,800

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Anderson, R. A	41-Aero Engr
	LARC/McComb, H. G., Jr.	

NGR 09-010-085 **George Washington University** **1776**
Aircraft noise reduction research

Period	Obligations	
02/21/73-12/31/77	FY77:	TOTAL: $504,750

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Margolis, K.	41-Aero Engr
	LARC/Morgan, H. G.	

NGR 09-010-096 **George Washington University** **1777**
Research program in microwave remote sensing

Period	Obligations	
09/01/73-02/14/78	FY77: $42,500	TOTAL: $135,572

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Croswell, W. F	45-Elec Engr

NSG 1026 **George Washington University** **1778**
A graduate research program in environmental modeling

Period	Obligations	
03/21/74-12/01/77	FY77: $156,600	TOTAL: $448,800

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Callis, L. B	31-Atmos Sci
	LARC/Tolson, R. H	

NSG 1110 **George Washington University** **1779**
Antenna and wave propagation applied to avionics systems

Period	Obligations	
10/01/74-12/31/77	FY77: $70,100	TOTAL: $110,500

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Bailey, M. C.	45-Elec Engr
	LARC/Croswell, W. F.	

NSG 1155 **George Washington University** **1780**
Studies related to materials flight sciences

Period	Obligations	
03/03/75-09/02/78	FY77: $131,736	TOTAL: $341,736

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Swann, R. T.	47-Materials Engr
Esterling, D. M	LARC/Stein, B. A.	

NSG 1161 **George Washington University** **1781**
Research in flight dynamics

Period	Obligations	
06/01/75-10/31/77	FY77: $35,276	TOTAL: $70,746

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H.	LARC/Suit, W. T	41-Aero Engr
	LARC/Queijo, M. J	

NSG 1216 **George Washington University** **1782**
Research in atmospheric science

Period	Obligations	
09/01/75-08/31/78	FY77: $33,371	TOTAL: $115,585

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Callis, L. B.	31-Atmos Sci
	LARC/Tolson, R. H.	

NSG 1228 **George Washington University** **1783**
Fracture of advanced composite materials

Period	Obligations	
09/01/75-02/28/78	FY77:	TOTAL: $80,730

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Poe, C. C., Jr.	47-Materials Engr
	LARC/Leybold, H. A	

NSG 1251 **George Washington University** **1784**
Severe storms research

Period	Obligations	
10/01/75-01/31/78	FY77: $103,536	TOTAL: $138,512

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Costen, R. C	31-Atmos Sci
Kaplan, M. L	LARC/Young, G. R	

NSG 1289 **George Washington University** **1785**
Research program in improved fracture toughness determination for aircraft structural materials

Period	Obligations	
03/01/76-02/28/78	FY77: $34,490	TOTAL: $83,990

Prin Invest	NASA Tech Officer	CASE Category
Liebowitz, H	LARC/Elber, W	47-Materials Engr
Jones, D. L	LARC/Davidson, J. R	

NSG 1338 **George Washington University** **1786**
Assessment of reliability and cost benefit models for fault tolerant airborne computing systems

Period	Obligations	
10/01/76-05/31/78	FY77: $75,907	TOTAL: $75,907
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gross, D.	LARC/Migneault, G. E. LARC/Bavuso, S. J.	41-Aero Engr

NSG 1339 **George Washington University** **1787**
Measurement and estimation problems for an automatic landing system

Period	Obligations	
10/15/76-10/14/77	FY77:	TOTAL: $13,642
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kyriakopoulos, N.	LARC/Creedon, J. F. LARC/Hueschen, R. M.	41-Aero Engr

NSG 1415 **George Washington University** **1788**
Statistical characterizations of the fatigue behavior of composite lamina

Period	Obligations	
05/01/77-04/30/78	FY77: $40,400	TOTAL: $40,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yang, J. N	LARC/Roderick, G. L. LARC/Whitcomb, J. D.	47-Materials Engr

NSG 1438 **George Washington University** **1789**
Research in aeroelasticity in the Joint Institute for Advancement of Flight Sciences at the NASA-Langley Research Center

Period	Obligations	
08/01/77-07/31/78	FY77: $21,958	TOTAL: $21,958
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liebowitz, H. Runyan, H. L.	LARC/Reed, W. H., III	41-Aero Engr

NSG 1449 **George Washington University** **1790**
Analysis of three-dimensional stresses near fastener holes in laminated composites

Period	Obligations	
09/01/77-08/31/78	FY77: $34,844	TOTAL: $34,844
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liebowitz, H.	LARC/Crews, J. H., Jr. LARC/Everett, R. A., Jr.	47-Materials Engr

NSG 3130 **George Washington University** **1791**
Videoconferencing for Congress. An experimental application of the communications technology satellite

Period	Obligations	
11/01/76-11/01/78	FY77: $61,145	TOTAL: $61,145
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wood, F. B. Coates, V. T.	LERC/Jackson, H. D.	99-Multi-Discip

NSG 5109 **George Washington University** **1792**
Decoding and performance of error correcting codes

Period	Obligations	
07/16/76-08/31/78	FY77: $37,392	TOTAL: $48,299
Prin Invest	*NASA Tech Officer*	*CASE Category*
Helgert, H. J.	GSFC/Morakis, J. C. GSFC/Miller, W. H.	49-Engr, NEC

NSG 7145 **George Washington University** **1793**
Analysis of the space shuttle decision

Period	Obligations	
06/11/75-08/31/77	FY77:	TOTAL: $33,037
Prin Invest	*NASA Tech Officer*	*CASE Category*
Logsdon, J. M	HQ-AD/Wright, M. D.	75-Political Sci

NCA 2-258701 **Georgetown University** **1794**
Neurotransmitter involvement in the central control of the stress response

Period	Obligations	
01/01/77-12/31/78	FY77: $29,976	TOTAL: $29,976
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kellar, K. J.	ARC/Danellis, J. V.	53-Other Medical

NSG 1418 **Georgetown University** **1795**
Research in environmental effects on advanced composites in the Joint Institute for Advancement of Flight Sciences at NASA Langley Research Center

Period	Obligations	
08/01/77-07/31/78	FY77: $34,080	TOTAL: $34,080
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liebowitz, H	LARC/Tenney, D. R. LARC/Tompkins, S. S.	47-Materials Engr

NAS 5-23799 **Howard University** **1796**
Quality assurance system in clinical practice settings

Period	Obligations	
12/07/76-01/31/78	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chang, P	GSFC/Alterescu, S. GSFC/Friedman, D. S.	52-Clinical Med

NAS 5-24242 **Howard University** **1797**
Study of aerodynamics for sounding rockets

Period	Obligations	
01/01/77-09/01/78	FY77: $37,877	TOTAL: $37,877
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fan, D. N.	GSFC/Barrowman, J. S.	41-Aero Engr

NAS 5-24251 **Howard University** **1798**
Study of flexible body interaction

Period	Obligations	
08/08/77-10/07/78	FY77: $19,980	TOTAL: $19,980
Prin Invest	*NASA Tech Officer*	*CASE Category*
Choudhury, A. K.	GSFC/Hui, P. S.	49-Engr, NEC

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NAS 8-31605 **Howard University** **1799**
Extended analysis of Skylab experiment M558 data
Period *Obligations*
05/16/75-09/15/75 FY77. TOTAL: $6,972
Prin Invest *NASA Tech Officer* *CASE Category*
Ukanwa, A. O. MSFC/Schafer, C. F. 47-Materials Engr
MSFC/Bannister, T. C.

NCA 5-14 **Howard University** **1800**
Co-operative program in engineering
Period *Obligations*
06/01/76-06/30/77 FY77· TOTAL: $23,500
Prin Invest *NASA Tech Officer* *CASE Category*
Cox, E. L. GSFC/Mundy, J. R. 49-Engr, NEC

NCA 5-21 **Howard University** **1801**
Prefreshman a d cooperative education program
Period *Obligations*
0(/01/77-06/30/78 FY77. $5,000 TOTAL: $5,000
Prin Invest *NASA Tech Officer* *CASE Category*
Cox, E. L. GSFC/Mundy, J. R. 99-Multi-Discip

NGL 09-011-017 **Howard University** **1802**
Study of neurohumoral control systems operations in adjustment of ventricular performance
Period *Obligations*
04/25/68-01/14/80 FY77· $70,000 TOTAL. $902,398
Prin Invest *NASA Tech Officer* *CASE Category*
Cothran, L. N. ARC/Sandler, H. 53-Other Medical

NGL 09-011-046 **Howard University** **1803**
Investigation of radiation detectors for environmental trace elements
Period *Obligations*
04/25/72-07/31/77 FY77: TOTAL $33,131
Prin Invest *NASA Tech Officer* *CASE Category*
Ferguson, G. A. HQ-P/Pohly, J. G. 39-Env Sci, NEC

NGR 09-011-057 **Howard University** **1804**
Electron spectroscopy
Period *Obligations*
04/01/74-01/31/78 FY77· $7,040 TOTAL $32,240
Prin Invest *NASA Tech Officer* *CASE Category*
Tsang, T. GSFC/Yin, L. I. 13-Physics

NGT 09-011-058 **Howard University** **1805**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-05/31/78 FY77 $21,000 TOTAL. $63,000
Prin Invest *NASA Tech Officer* *CASE Category*
Cox, E. L. HQ-P/Pohly, J. G. 49-Engr, NEC
HQ-U/Jenkins, H. G.

NSG 1130 **Howard University** **1806**
Continuum modeling of large area space structures with respect to a minium allowable natural frequency
Period *Obligations*
12/09/74-03/15/78 FY77 $28,370 TOTAL: $88,520
Prin Invest *NASA Tech Officer* *CASE Category*
Broome, T. H. LARC/Anderson, M. S. 44-Civil Engr
LARC/Kruszewski, E. T.

NSG 1181 **Howard University** **1807**
Dynamics of spin stabilized spacecraft with movable appendages
Period *Obligations*
05/16/75-05/15/77 FY77. TOTAL· $62,146
Prin Invest *NASA Tech Officer* *CASE Category*
Bainum, P. M LARC/Martz, C. W. 41-Aero Engr

NSG 1320 **Howard University** **1808**
Graduate research program in advanced aerospace structures
Period *Obligations*
06/29/76-06/30/78 FY77 $47,200 TOTAL $63,200
Prin Invest *NASA Tech Officer* *CASE Category*
Jones, I. W LARC/Horner, G. C. 42-Astro Engr
LARC/Card, M. F

NSG 1414 **Howard University** **1809**
The dynamics and control of large flexible space structures
Period *Obligations*
05/16/77-05/15/78 FY77. $34,974 TOTAL $34,974
Prin Invest *NASA Tech Officer* *CASE Category*
Bainum, P. M. LARC/Russell, R. A. 49-Engr, NEC

NSG 5016 **Howard University** **1810**
Investigations of MIMS applications
Period *Obligations*
09/01/74-11/30/76 FY77. TOTAL. $37,526
Prin Invest *NASA Tech Officer* *CASE Category*
Chang, P GSFC/Alterescu, S. 53-Other Medical

NSG 5071 **Howard University** **1811**
Laser induced photoluminiscence studies of primary photochemical production processes of cometary radicals
Period *Obligations*
08/01/75-01/31/79 FY77 $59,978 TOTAL. $129,978
Prin Invest *NASA Tech Officer* *CASE Category*
Jackson, W. M. GSFC/Stief, L. J. 12-Chemistry

NSG 5081 **Howard University** **1812**
Infant weighing scheme
Period *Obligations*
10/13/75-01/31/78 FY77. TOTAL $38,940
Prin Invest *NASA Tech Officer* *CASE Category*
Deloatch, E. M. GSFC/Alterescu, S. 53-Other Medical

NSG 5104 **Howard University** **1813**
Determination of bacteria concentration by luminescence assay
Period *Obligations*
03/15/76-11/15/76 FY77: $3,021 TOTAL: $13,002
Prin Invest *NASA Tech Officer* *CASE Category*
Okrend, H. H. GSFC/Picciolo, G. L. 51-Biology

NSG 5127 **Howard University** **1814**
Recognition and treatment of coronary heart attacks
Period *Obligations*
10/01/76-01/31/78 FY77: $10,900 TOTAL: $28,900
Prin Invest *NASA Tech Officer* *CASE Category*
Fischmann, E. J. GSFC/Friedman, D. S. 52-Clinical Med
GSFC/Chen, W.

NSG 5158 **Howard University** **1815**
Research of microwave semiconductor devices
Period *Obligations*
02/01/77-01/31/78 FY77: $150,250 TOTAL: $150,250
Prin Invest *NASA Tech Officer* *CASE Category*
Bhar, T. N GSFC/Lyons, J. C. 13-Physics
Chowdhary, R. GSFC/Dargo, D. R.
Wang, Y.

NSG 5186 **Howard University** **1816**
Research in space sciences
Period *Obligations*
07/01/77-06/30/79 FY77: $150,000 TOTAL: $150,000
Prin Invest *NASA Tech Officer* *CASE Category*
Thorpe, A. N. GSFC/OKeefe, J. A. 13-Physics
Chung, D.
Tsang, T

NSG 9010 **Howard University** **1817**
Theoretical evaluation of linear Kalman filtering techniques for advanced mission state determination
Period *Obligations*
07/01/74-12/31/77 FY77: TOTAL: $30,960
Prin Invest *NASA Tech Officer* *CASE Category*
Choudhury, A. K. JSC/Savely, R. T. 45-Elec Engr

NGR 09-053-003 **District of Columbia Teachers College** **1818**
Investigation of problems associated with solid encapsulation of high voltage electronic assemblies
Period *Obligations*
04/15/74-04/14/78 FY77: $43,555 TOTAL: $95,438
Prin Invest *NASA Tech Officer* *CASE Category*
Bever, R. S. GSFC/Westrom, J. L. 39-Env Sci, NEC
GSFC/Anstead, R. J.

NSG 6003 **District of Columbia Teachers College** **1819**
A polar nephelometer study of water surfaces
Period *Obligations*
07/15/75-05/14/77 FY77: TOTAL: $23,647
Prin Invest *NASA Tech Officer* *CASE Category*
Curtis, W. C. WFC/Holland, A. C. 19-Phys Sci

NGR 09-050-001 **Federal City College** **1820**
Study of detectors for extremely relativistic particles
Period *Obligations*
10/07/69-09/30/77 FY77: TOTAL: $212,149
Prin Invest *NASA Tech Officer* *CASE Category*
Whiteside, H. GSFC/Ormes, J. F. 13-Physics
Rogers, E. H., Jr.

NGR 09-050-003 **Federal City College** **1821**
Fundamental and analytical investigations of mechanisms and phenomena related to spacecraft electrochemical devices
Period *Obligations*
10/07/69-06/30/76 FY77: TOTAL: $144,472
Prin Invest *NASA Tech Officer* *CASE Category*
Nottingham, W. C. GSFC/Webster, W. H., Jr. 11-Astronomy
GSFC/Ford, F. E.

NGR 09-050-019 **Federal City College** **1822**
Determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation
Period *Obligations*
02/18/74-11/30/77 FY77 $30,000 TOTAL: $79,759
Prin Invest *NASA Tech Officer* *CASE Category*
Phelps, H. L. GSFC/Nava, D. E. 39-Env Sci, NEC

NGR 09-050-020 **Federal City College** **1823**
Application of Alexeev's theorem to two body perturbed problems
Period *Obligations*
03/01/74-07/31/76 FY77: TOTAL: $23,056
Prin Invest *NASA Tech Officer* *CASE Category*
Bakshi, J. S. GSFC/Fuchs, A. J 21-Mathematics

NSG 5122 **Federal City College** **1824**
Research in orbit determination by method of least squares and kalman filter
Period *Obligations*
08/01/76-09/30/78 FY77 TOTAL: $12,970
Prin Invest *NASA Tech Officer* *CASE Category*
Bakshi, J. S GSFC/Lefferts, E. J. 21-Mathematics

NSG 5192 **Federal City College** **1825**
Excitation cross section measurements of atmospheric interest
Period *Obligations*
08/01/77-07/31/78 FY77: $39,443 TOTAL: $39,443
Prin Invest *NASA Tech Officer* *CASE Category*
Morgan, H. D. GSFC/Mentall, J. E. 13-Physics

NCA 5-63 **Washington Technical Institute** **1826**
Study of the evolution of solar active regions
Period *Obligations*
06/16/76-08/30/76 FY77: $4,000 TOTAL: $4,000
Prin Invest *NASA Tech Officer* *CASE Category*
Kasten, R. GSFC/Hobbs, R. W. 31-Atmos Sci

NCA 5-77 **Washington Technical Institute** **1827**
Study of the evolution of solar active regions

Period	Obligations	
06/16/77-08/16/77	FY77: $4,000	TOTAL: $4,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kasten, R.	GSFC/Hobbs, R. W.	11-Astronomy

FLORIDA

NGR 10-022-001 **Bethune - Cookman College** **1828**
A study of lagoonal and estuarine processes through the beneficial disposal of solid waste

Period	Obligations	
07/26/72-10/31/77	FY77: $29,158	TOTAL: $128,138
Prin Invest	*NASA Tech Officer*	*CASE Category*
Poonai, P.	KSC/Withrow, R. A.	39-Env Sci, NEC

NCA 2-230701 **Florida A&M University** **1829**
Use of campus facilities and services by NASA to support research in chronopharmacology

Period	Obligations	
08/01/77-07/31/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, C. A.	ARC/Winget, C. M.	61-Biol Aspects

NGR 10-010-002 **Florida A&M University** **1830**
Development of methods for analysis of hydrocarbons in partially purified waste water

Period	Obligations	
60/17/30-01/31/76	FY77:	TOTAL: $40,498
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cottrell, P. T.	KSC/Schehl, T. A.	39-Env Sci, NEC

NSG 805 **Florida A&M University** **1831**
Studies on the morphological, biochemical, and growth characteristics of salmonella nadshigella in waterways surrounding Cape Kennedy

Period	Obligations	
04/01/75-04/01/76	FY77:	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harrell, B. E.	KSC/Malone, J. E.	59-Life Sci, NEC

NSG 901 **Florida A&M University** **1832**
Electron-impact excitation of molecular nitrogen

Period	Obligations	
09/12/74-10/14/77	FY77.	TOTAL: $79,128
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jones, H. J.	HQ-P/Pohly, J. G.	13-Physics
Weatherford, C. A.		

NSG 2029 **Florida A&M University** **1833**
Study of influence of amines on diurnal toxicity of stimulants and depressants

Period	Obligations	
07/01/74-08/31/78	FY77: $50,000	TOTAL: $168,058
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, C. A.	ARC/Winget, C. M.	59-Life Sci, NEC
	ARC/Danellis, J. V.	

NSG 2103 **Florida A&M University** **1834**
Microbial transformation of nucleosides

Period	Obligations	
10/01/75-03/31/78	FY77:	TOTAL: $30,034
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lamba, S. S.	ARC/Winget, C. M.	59-Life Sci, NEC

NSG 2183 **Florida A&M University** **1835**
Regulation of the adrenal cortex function during stress

Period	Obligations	
09/01/76-08/31/78	FY77: $30,000	TOTAL: $59,789
Prin Invest	*NASA Tech Officer*	*CASE Category*
Soliman, K. F.	ARC/Winget, C. M.	59-Life Sci, NEC
	ARC/Danellis, J. V.	

NAS10-8399 **Florida Institute of Technology** **1836**
Hypergolic propellants liquid and vapor disposal study

Period	Obligations	
08/08/73-05/11/77	FY77: $10,974	TOTAL: $339,882
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bowman, T. E.	KSC/Franks, H. H.	43-Chem Engr
Newman, R. W.	KSC/Dobson, J. L.	

NAS10-9166 **Florida Institute of Technology** **1837**
Toxic chemical waste disposal

Period	Obligations	
05/16/77-08/16/78	FY77: $54,550	TOTAL: $54,550
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bowman, T. E.	KSC/Franks, H. H.	43-Chem Engr

NAS 1-9693 **Florida State University** **1838**
Participation in the science planning for the Viking 1975 missions in the area of meteorology

Period	Obligations	
03/23/70-09/30/78	FY77: $71,807	TOTAL: $436,110
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hess, S. K.	LARC/Williams, T. S., Jr	
	LARC/Glenny, W. R.	32-Geological Sci

NAS 1-14930 **Florida State University** **1839**
Science support for the stratospheric aerosol and gas experiment

Period	Obligations	
06/22/77-09/30/79	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Craig, R. A.	LARC/McMaster, L. R	31-Atmos Sci
	LARC/McCormick, M. P.	

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NAS 5-22578 **Florida State University** **1840**
Geobotanical interpretation of the geology and phosphate occurrences of North-Central Florida

Period *Obligations*
09/09/75-11/09/76 FY77: TOTAL: $4,886
Prin Invest *NASA Tech Officer* *CASE Category*
Bue, B F. GSFC/Schnetzler, C. C. 32-Gelogical Sci

NGR 10-004-056 **Florida State University** **1841**
Infrared absorption from 0.8 to 1.5 microns of Nh3, Ch4 and CO2

Period *Obligations*
03/25/69-01/31/78 FY77: $10,147 TOTAL: $245,712
Prin Invest *NASA Tech Officer* *CASE Category*
Hunt, R. H HQ-SI/Brunk, W. E 11-Astronomy
HQ-SI/Fellows, R. I

NSG 1329 **Florida State University** **1842**
The role of large scale disturbances in flow surface noise generation

Period *Obligations*
07/15/76-10/31/77 FY77 TOTAL: $25,300
Prin Invest *NASA Tech Officer* *CASE Category*
Lam, C K LARC Hardin, J C 13-Physics

NSG 2201 **Florida State University** **1843**
The interaction between flow disturbances and an airfoil with special emphasis on the unsteady Kutta condition

Period *Obligations*
01/01/77-12/31/77 FY77 $9,980 TOTAL $9,980
Prin Invest *NASA Tech Officer* *CASE Category*
Lam, C K ARC Davis, S S 41-Aero Engr
ARC Chapman, G A

NSG 7337 **Florida State University** **1844**
Rock-inhabiting microorganisms from hot and cold deserts Adaptations to extreme environments

Period *Obligations*
03/15/77-03/14/78 FY77 $55,000 TOTAL $55,000
Prin Invest *NASA Tech Officer* *CASE Category*
Friedmann, E I HQ-SB Young, R S 51-Biology
Friedmann, R O

NAS10-8934 **Florida Technological University** **1845**
Vascular aquatic plant research

Period *Obligations*
01/06/76-03/05/77 FY77 TOTAL $6,614
Prin Invest *NASA Tech Officer* *CASE Category*
Osborne, J KSC/Burton, R 39-Env Sci, NEC

NAS13-8986 **Florida Technological University** **1846**
Base-line studies for environmentally monitoring effects of space transportation systems

Period *Obligations*
05/28/76-08/14/78 FY77 $200,000 TOTAL $519,578
Prin Invest *NASA Tech Officer* *CASE Category*
Vickers, D H KSC/Lee, W H 39-Env Sci, NEC

NGR 10-019-004 **Florida Technological University** **1847**
Study of a diverse coastal ecosystem o. .e Atlantic coast of Florida

Period *Obligations*
04/11/72-04/23/76 FY77 TOTAL $226,008
Prin Invest *NASA Tech Officer* *CASE Category*
Sweet, H. C. KSC/Lee, W. H 39-Env Sci, NEC
Ehrhart, L. M.
Snelson, F. F.

NGR 10-019-009 **Florida Technological University** **1848**
Solid rocket exhaust effects on ecology and environment

Period *Obligations*
02/03/73-03/31/76 FY77: TOTAL: $159,378
Prin Invest *NASA Tech Officer* *CASE Category*
StJohn, R. KSC/Lee, W. H 39-Env Sci, NEC
Mickus, J

NSG 5110 **Florida Technological University** **1849**
Analysis of radio observations of cometary nebulae

Period *Obligations*
05/01/76-06/30/77 FY77: TOTAL $7,700
Prin Invest *NASA Tech Officer* *CASE Category*
Katzin, J C GSFC/Hobbs, R W 11-Astronomy

NASW 3060 **State University System of Florida** **1850**
Operation of a State Technology Application Center

Period *Obligations*
01/01/77-12/31/77 FY77 $95,980 TOTAL $94,980
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HQ-KT/Dolby, W 99-Multi-Discip

NAS 5-22908 **University of Florida** **1851**
Nimbus-G experiment team for solar back scattered ultraviolet and total ozone mapping system

Period *Obligations*
12/19/75-12/19/78 FY77 $58,000 TOTAL $78,000
Prin Invest *NASA Tech Officer* *CASE Category*
Green, A E GSFC Heath, D F 49-Engr, NEC
GSFC Nelsen, E D

NAS 8-20247 **Univer Florida** **1852**
Study of age deterioration of gaske terials installed in simulated launch vehicle hardware

Period *Obligations*
06/28/65-06/30/79 FY77 TOTAL $43,055
Prin Invest *NASA Tech Officer* *CASE Category*
Patterson, E P MSFC/Schell, J E 12-Chemistry
MSFC/Wood, E E

NAS 9-15114 **University of Florida** **1853**
Influence of clouds on UV-B pentration of the earth's surface

Period *Obligations*
09/01/76-08/31/78 FY77 $25,000 TOTAL $50,000
Prin Invest *NASA Tech Officer* *CASE Category*
Green, A E JSC/Nachtwey, D S 51-Biology

NAS10-8920 **University of Florida** **1854**
Models to predict earth-air interface temperature regimes during freeze conditions
Period 12/02/75-12/02/77 *Obligations* FY77: $68,000 TOTAL: $142,998
Prin Invest Bartholic, J. F. *NASA Tech Officer* KSC/Pope, C. D. *CASE Category* 39-Env Sci, NEC

NAS10-9168 **University of Florida** **1855**
Satellite freeze forecast system
Period 05/10/77-05/10/78 *Obligations* FY77: $97,734 TOTAL: $97,734
Prin Invest Bartholic, J. F. *NASA Tech Officer* KSC/Pope, C. D. *CASE Category* 39-Env Sci, NEC

NGL 10-005-008 **University of Florida** **1856**
Theoretical atmospheric physics
Period 06/04/64-04/30/79 *Obligations* FY77: TOTAL: $612,460
Prin Invest Green, A. S. *NASA Tech Officer* HQ-SL/Fellows, R. F.; HQ-SL/Brunk, W. E. *CASE Category* 31-Atmos Sci

NGL 10-005-022 **University of Florida** **1857**
Gas solubilities and transport properties in fuel cell electrolytes
Period 02/14/66-12/31/77 *Obligations* FY77: TOTAL: $278,211
Prin Invest Walker, R. D., Jr. *NASA Tech Officer* LERC/Post, R. E. *CASE Category* 43-Chem Engr

NGL 10-005-089 **University of Florida** **1858**
Experimental investigation of a uranium plasma
Period 01/30/68-12/31/78 *Obligations* FY77: $5,000 TOTAL: $778,795
Prin Invest Schneider, R. T. *NASA Tech Officer* HQ-RR/Thom, K *CASE Category* 13-Physics

NGL 10-005-127 **University of Florida** **1859**
Experimental investigation of round turbulent jet exhausting into a subsonic cross flow
Period 12/03/69-10/31/78 *Obligations* FY77: $4,900 TOTAL: $205,182
Prin Invest Fearn, R. L. *NASA Tech Officer* LARC/Margason, R. J. *CASE Category* 41-Aero Engr

NGR 10-005-057 **University of Florida** **1860**
Studies of electroencephalographic patterns
Period 05/23/68-03/31/78 *Obligations* FY77: $50,000 TOTAL: $554,470
Prin Invest Webb, W. B. *NASA Tech Officer* ARC/Patton, R. M. *CASE Category* 69-Psych, NEC

NGR 10-005-169 **University of Florida** **1861**
Lightning studies
Period 01/15/73-04/18/78 *Obligations* FY77: $16,200 TOTAL: $55,197
Prin Invest Uman, M. A. *NASA Tech Officer* KSC/Jafferis, W *CASE Category* 31-Atmos Sci

NGR 10-005-182 **University of Florida** **1862**
Fundamental studies on electrolyte matrix processing
Period 06/26/73-12/31/77 *Obligations* FY77: TOTAL: $102,667
Prin Invest Walker, R. D., Jr. *NASA Tech Officer* LERC/Sheibley, D. W. *CASE Category* 43-Chem Engr

NSG 1363 **University of Florida** **1863**
Perturbations to atmospheric methane: Their causes and possible effects
Period 12/01/76-11/30/77 *Obligations* FY77: $24,413 TOTAL: $24,413
Prin Invest Chameides, W. L. *NASA Tech Officer* LARC/Reichle, H. G., Jr.; LARC/Beck, S. M. *CASE Category* 31-Atmos Sci

NSG 1425 **University of Florida** **1864**
Study of the electronic properties in the electron and proton irradiated GaS solar cell materials
Period 09/01/77-08/31/78 *Obligations* FY77: $35,400 TOTAL: $35,400
Prin Invest Li, S. S. *NASA Tech Officer* LARC/Walker, G. H.; LARC/Conway, E. J. *CASE Category* 45-Elec Engr

NSG 2120 **University of Florida** **1865**
Investigation on the flow about general fuselage shapes at high angles of attack
Period 09/15/75-09/30/79 *Obligations* FY77: $38,572 TOTAL: $100,806
Prin Invest Clarkson, M. H. *NASA Tech Officer* ARC/Malcolm, G. N.; ARC/Chapman, G. T *CASE Category* 41-Aero Engr

NSG 3018 **University of Florida** **1866**
Silicon PN junction solar cells
Period 06/24/74-09/14/78 *Obligations* FY77: $45,000 TOTAL: $221,983
Prin Invest Lindholm, F. A. *NASA Tech Officer* LERC/Godlewski, M. P.; LERC/Brandhorst, H. W., Jr. *CASE Category* 45-Elec Engr

NSG 3120 **University of Florida** **1867**
Synthesis of thermally stable polymers from triazolinedione intermediates
Period 09/01/76-11/30/77 *Obligations* FY77: TOTAL: $43,199
Prin Invest Butler, G. B. *NASA Tech Officer* LERC/Alston, W. B *CASE Category* 12-Chemistry

NSG 5116 **University of Florida** **1868**
Investigation of the doubling of the MG II 2759 resonance line
Period 06/01/76-05/31/77 *Obligations* FY77. TOTAL $3,770
Prin Invest Chen, K. W
NASA Tech Officer GSFC/Kupperian, J E., Jr
CASE Category 11-Astronomy

NSG 7143 **University of Florida** **1869**
Analysis of Jupiter data from radio astronomy experiment spacecraft
Period 06/01/75-12/31/77 *Obligations* FY77 $25,000 TOTAL $46,079
Prin Invest Carr, T. D
NASA Tech Officer HQ-SA/Roman, N. G.; HQ-SA/Rosendhal, J. D.
CASE Category 11-Astronomy

NSG 7236 **University of Florida** **1870**
Use of remote sensing in solving Florida's geological and coastal engineering problems
Period 07/01/76-06/30/80 *Obligations* FY77 $100,000 TOTAL $300,000
Prin Invest Brooks, H. K
NASA Tech Officer HQ-P/Vitale, J A.
CASE Category 39-Env Sci, NEC

NSG 7299 **University of Florida** **1871**
Basic research relevant to a CW-nuclear pumped laser
Period 01/01/77-12/31/77 *Obligations* FY77 $89,000 TOTAL $89,000
Prin Invest Schneider, R T
NASA Tech Officer HQ-RR/Thom, K; LARC/Hohl, F
CASE Category 13-Physics

NSG 8031 **University of Florida** **1872**
Space processing applications shuttle payload requirements specifications study
Period 09/26/75-03/25/76 *Obligations* FY77 TOTAL $4,500
Prin Invest Goldberg, F P
NASA Tech Officer MSFC/Taylor, K R
CASE Category 19-Phys Sci, NEC

W-14206 **University of Florida** **1873**
A study of potential technology utilization assistance
Period 08/06/76-10/01/76 *Obligations* FY77 TOTAL $10,000
Prin Invest Unavailable
NASA Tech Officer HQ-KT/Dolby, W R
CASE Category 99-Multi-Discip

NAS 5-22417 **University of Miami** **1874**
Determination of potential solar power sites in Western Hemisphere
Period 06/05/75-09/05/77 *Obligations* FY77. $31,907 TOTAL $126,907
Prin Invest Hiser, H W
NASA Tech Officer GSFC/Williams, D
CASE Category 19-Phys Sci, NEC

NAS 5-22963 **University of Miami** **1875**
Nimbus G coastal zone color scanner sensor experiment
Period 02/02/76-02/02/79 *Obligations* FY77 $22,000 TOTAL $42,000
Prin Invest Gordon, H R
NASA Tech Officer GSFC/Nelsen, F D
CASE Category 31-Atmos Sci

NAS10-8795 **University of Miami** **1876**
Study of laser application to measure vertical sea temperature and turbidity
Period 03/01/75-02/27/76 *Obligations* FY77 TOTAL $29,653
Prin Invest Hirschberg, J G.; Wouters, A W
NASA Tech Officer KSC/Bland, R. A; KSC/Toft, P D
CASE Category 39-Env Sci, NEC

NAS10-8926 **University of Miami** **1877**
Remote sensing for detection and prediction of thermal pollution
Period 01/06/76-05/04/78 *Obligations* FY77 $65,000 TOTAL $184,993
Prin Invest Lee, S S.; Sengupta, S
NASA Tech Officer KSC/Bland, R. A
CASE Category 39-Env Sci, NEC

NAS10-8954 **University of Miami** **1878**
Development and application of a laser system as model to Lake Belows, North Carolina and turbidity
Period 03/22/76-09/22/77 *Obligations* FY77 TOTAL $50,000
Prin Invest Hirschberg, J G; Wouters, A W
NASA Tech Officer KSC/Bland, R A
CASE Category 39-Env Sci, NEC

NAS10-9005 **University of Miami** **1879**
Application of rigid lid three dimensional math model to Lake Belows, North Carolina
Period 07/02/76-07/01/77 *Obligations* FY77 TOTAL $54,997
Prin Invest Lee, S. S; Sengupta, S
NASA Tech Officer KSC/Bland, R A
CASE Category 39-Env Sci, NEC

NGR 10-007-008 **University of Miami** **1880**
Research in the Institute of Molecular Evolution in the School of Environmental and Planetary Sciences
Period 06/09/64-09/30/77 *Obligations* FY77 $150,000 TOTAL $2,392,040
Prin Invest Fox, S W
NASA Tech Officer HQ-SB/Young, R S
CASE Category 12-Chemistry

NGR 10-007-097 **University of Miami** **1881**
Water immersion study
Period 06/08/72-09/30/77 *Obligations* FY77 TOTAL $125,000
Prin Invest Epstein, M
NASA Tech Officer JSC/Leach, C S
CASE Category 52-Clinical Med

FLORIDA (Continued)

NGR 10-007-118 — **University of Miami** — **1882**
Comparison of stress corrosion cracking behavior of high strength alloys in natural sea water and synthetic sea salt solutions

Period	Obligations	
11/26/73-12/31/77	FY77: $30,400	TOTAL: $103,550

Prin Invest	NASA Tech Officer	CASE Category
Craig, H. L., Jr.	LERC/Shannon, J. L., Jr.	47-Materials Engr
	LERC/Brown, W. F., Jr.	

NSG 1283 — **University of Miami** — **1883**
Effects of environmental variables on the crack initiation stages of the corrosion fatigue of high strength aluminum alloys

Period	Obligations	
03/01/76-02/28/78	FY77: $29,700	TOTAL: $59,400

Prin Invest	NASA Tech Officer	CASE Category
Craig, H. L., Jr.	LARC/Lisagor, W. B.	47-Materials Engr
	LARC/Ransone, P. O.	

NSG 1436 — **University of Miami** — **1884**
Development of Boolean calculus and its application

Period	Obligations	
08/15/77-08/14/78	FY77: $16,098	TOTAL: $16,098

Prin Invest	NASA Tech Officer	CASE Category
Tapia, M. A.	LARC/Tucker, J. H.	21-Mathematics

NSG 7245 — **University of Miami** — **1885**
Excess helium in meteorites

Period	Obligations	
06/01/76-08/31/77	FY77:	TOTAL: $22,080

Prin Invest	NASA Tech Officer	CASE Category
Fisher, D. E.	HQ-SL/French, B. M.	32-Geological Sci

NSG 7309 — **University of Miami** — **1886**
Cosmogenic production rates in chondritic meteorites

Period	Obligations	
02/01/77-01/31/78	FY77 $34,190	TOTAL: $34,190

Prin Invest	NASA Tech Officer	CASE Category
Fisher, D. E	HQ-SL/French, B. M.	32-Geological Sci
	HQ-SL/Quaide, W. L.	

S-55672A — **University of Miami** — **1887**
Optimum signal processing for low signal-to clutter environment for a down-looking meteorological radar

Period	Obligations	
03/29/76-09/15/77	FY77:	TOTAL: $10,000

Prin Invest	NASA Tech Officer	CASE Category
Haskin, L. A.	GSFC/Shiue, J. C.	45-Elec Engr

NAS 8-31172 — **University of South Florida** — **1888**
Investigation of electrical properties of conductive adhesives and film resistors

Period	Obligations	
02/07/75-07/26/77	FY77:	TOTAL: $39,837

Prin Invest	NASA Tech Officer	CASE Category
Sergent, J	MSFC/Caruso, S. V.	45-Elec Engr
	MSFC/Dehaye, R. F.	

NSG 1159 — **University of South Florida** — **1889**
Non-Gaussian classification procedure of pattern recognition

Period	Obligations	
06/01/75-09/30/77	FY77:	TOTAL: $30,000

Prin Invest	NASA Tech Officer	CASE Category
Tsokos, C. P.	LARC/Park, S. K.	21-Mathematics

NSG 1420 — **University of South Florida** — **1890**
A numerical study of resonance effects on tidal evolution of satellite orbits

Period	Obligations	
06/15/77-06/14/78	FY77: $36,299	TOTAL: $36,299

Prin Invest	NASA Tech Officer	CASE Category
Smith, H. C.	LARC/Tolson, R. H.	11-Astronomy

NSG 3096 — **University of South Florida** — **1891**
Computerized power supply analysis: State equation generation and terminal models

Period	Obligations	
02/02/76-04/02/78	FY77: $24,793	TOTAL: $49,342

Prin Invest	NASA Tech Officer	CASE Category
Garrett, S. J.	LERC/Triner, J. E.	45-Elec Engr
Bowers, J. C.	LERC/Kolecki, J. C.	

NSG 7242 — **University of South Florida** — **1892**
Analysis of satellite observations of beta Lyrae and other objects

Period	Obligations	
06/15/76-06/30/78	FY77: $12,000	TOTAL: $24,640

Prin Invest	NASA Tech Officer	CASE Category
Wilkins, R. D.	LARC/Hall, J. B., Jr.	11-Astronomy
Zimmer, R. P.	LARC/Sullivan, F. M.	

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GEORGIA

NSG 8019 — **Atlanta University** — **1893**
A study of the redox photo-chemistry of a number of iron complexes

Period	Obligations	
09/01/74-09/02/78	FY77: $24,810	TOTAL: $74,983

Prin Invest	NASA Tech Officer	CASE Category
Reed, J. L.	MSFC/Curry, J. E.	12-Chemistry
	MSFC/Kent, M. I.	

NSG 2143 — **Clark College** — **1894**
Aerosol formation and the space shuttle program

Period	Obligations	
04/15/76-12/31/77	FY77	TOTAL: $40,215

Prin Invest	NASA Tech Officer	CASE Category
Walker, G. H.	ARC/Black, D. C.	31-Atmos Sci

NSG 7267 **Clark College** **1895**
Study of impurity states in quasi one-dimensional systems

Period	Obligations	
12/01/76-11/30/77	FY77	TOTAL $11,832
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sinha, O. P	JPL/Somoano, R	13-Physics

NGL 11-001-009 **Emory University** **1896**
Study of cardiovascular adaptation during long-term weightlessness

Period	Obligations	
05/12/65-06/30/80	FY77 $35,000	TOTAL $557,179
Prin Invest	*NASA Tech Officer*	*CASE Category*
Popovic, V. P.	ARC/Holton, E. M.	51-Biology

NGR 11-001-016 **Emory University** **1897**
Histopathological & histochemical study of subhuman primates

Period	Obligations	
10/01/63-02/28/78	FY77 $86,486	TOTAL $856,648
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bourne, G. H	ARC/Sandler, H.	51-Biology

NGR 11-001-045 **Emory University** **1898**
Vestibular influence on sleep in non-human primates

Period	Obligations	
10/07/71-01/01/78	FY77 $84,090	TOTAL $370,178
Prin Invest	*NASA Tech Officer*	*CASE Category*
Perachio, A. A	ARC/Daunton, N. G	59-Life Sci, NEC

H-23602B **Georgia Institute of Technology** **1899**
Perform microprobe analysis of aluminum and oxygen on steel samples

Period	Obligations	
04/29/76-05/15/76	FY77 $575	TOTAL $575
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brown, J	MSFC/Eudy, R. G.	47-Materials Engr

NAS 1-13422 **Georgia Institute of Technology** **1900**
Study of biological experiments for the Viking mission

Period	Obligations	
09/13/74-12/31/77	FY77 $14,000	TOTAL $53,255
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hubbard, J. S	LARC/Williams, L. S., Jr.	51-Biology
	LARC/Glenny, W. R	

NAS 1-14351 **Georgia Institute of Technology** **1901**
Benefit assessment of pollution monitoring satellites

Period	Obligations	
02/26/76-04/01/78	FY77 $62,406	TOTAL $112,406
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zimmer, R. P	LARC/Lawrence, G. F	31-Atmos Sci
Sassone, P	LARC/Rarer, J. T	
Haffer, S. C		

NAS 1-14654 **Georgia Institute of Technology** **1902**
Investigation of the effects of long duration exposure on active optical system components

Period	Obligations	
10/14/76-08/13/78	FY77 $197,823	TOTAL $197,823
Prin Invest	*NASA Tech Officer*	*CASE Category*
Blue, M. D.	LARC/ONeal, R. L.	45-Elec Engr
Gallagher, J. J.	LARC/Battista, J. D.	
Shackelford, R. G.		

NAS 1-14947 **Georgia Institute of Technology** **1903**
Data systems study for retrieving remote sensing stratospheric pollution monitoring data from satellite, airborne, and surface platforms

Period	Obligations	
06/01/77-06/30/78	FY77 $74,157	TOTAL $74,157
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilkins, R. D	LARC/Hall, J. B., Jr	99-Multi-Discip
Zimmer, R. P.	LARC/Sullivan, T. M	

NAS 3-19700 **Georgia Institute of Technology** **1904**
Cost benefits of space communications technology

Period	Obligations	
05/09/75-04/30/76	FY77	TOTAL $91,038
Prin Invest	*NASA Tech Officer*	*CASE Category*
Camp, A. A.	LERC/Stevenson, S	49-Engr, NEC

NAS 3-20110 **Georgia Institute of Technology** **1905**
Study of millimeter wave satellite concepts

Period	Obligations	
06/01/76-07/01/77	FY77 $16,910	TOTAL $100,703
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zimmer, R. P	LERC/Stevens, G. H	42-Astro Engr

NAS 5-20956 **Georgia Institute of Technology** **1906**
Research instrumentation for tornado electromagnetic emissions detection

Period	Obligations	
02/07/75-02/18/77	FY77	TOTAL $107,277
Prin Invest	*NASA Tech Officer*	*CASE Category*
Robertson, D. W	GSFC/Levine, D. M	31-Atmos Sci

NAS 5-23603 **Georgia Institute of Technology** **1907**
Dual channel 180 GHz radiometer for Convair 990 flights

Period	Obligations	
06/19/76-09/18/77	FY77 $32,402	TOTAL $67,402
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dees, J. W	GSFC/King, J. T	45-Elec Engr
Schuchardt, J. M		

NAS 5-23710 **Georgia Institute of Technology** **1908**
Aircraft radiometer system for project Storm Fury

Period	Obligations	
09/21/76-09/30/79	FY77 $84,000	TOTAL $166,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dees, J. W	GSFC/King, J. T	45-Elec Engr

NAS 5-23886 **Georgia Institute of Technology** **1909**
Cylindrical wave expansion study

Period	Obligations	
02/08/77-03/08/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Leach, W. M., Jr.	GSFC/Schmidt, R. F.	31-Atmos Sci

NAS 5-24148 **Georgia Institute of Technology** **1910**
Thunderstorm research international project 1977

Period	Obligations	
05/04/77-05/04/78	FY77: $14,997	TOTAL: $14,997
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Wilson, C. S.	GSFC/Levine, D. M.	31-Atmos Sci
Wilson, B. J.		

NAS 8-30246 **Georgia Institute of Technology** **1911**
Multiple halogram recording in lithium niobate

Period	Obligations	
10/01/73-01/01/76	FY77:	TOTAL: $28,969
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Callen, W. R.	MSFC/Kerr, J. H.	13-Physics
Gaylord, T. K.	MSFC/Pitts, E. H.	

NAS 8-30617 **Georgia Institute of Technology** **1912**
Probability analysis of crank initiation

Period	Obligations	
03/22/74-09/30/76	FY77:	TOTAL: $19,342
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Hanagud, S. V.	MSFC/Bianca, C. J.	19-Phys Sci, NEC
	MSFC/Key, J.	

NAS 8-30653 **Georgia Institute of Technology** **1913**
USGS/NASA land-use classification system

Period	Obligations	
04/02/74-02/28/77	FY77:	TOTAL: $49,980
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Dees, J. W.	MSFC/Paludan, C. T.	39-Env Sci, NEC
Faust, N. L.		
Spann, G. W.		

NAS 8-30657 **Georgia Institute of Technology** **1914**
Neutral thermodynamic atmospheric model research study

Period	Obligations	
04/22/74-01/31/77	FY77:	TOTAL: $81,637
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Justus, C. G.	MSFC/Smith, O. E.	49-Engr, NEC

NAS 8-31193 **Georgia Institute of Technology** **1915**
A laser scanner for 35 mm film

Period	Obligations	
02/25/75-04/24/77	FY77	TOTAL: $58,945
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Callen, W. R	MSFC/Kerr, J. H.	13-Physics

NAS 8-31344 **Georgia Institute of Technology** **1916**
Define conceptional design of an on-board optical processor with components

Period	Obligations	
03/10/75-01/09/77	FY77:	TOTAL: $99,708
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Walsh, J. R.	MSFC/Smith, H. F.	13-Physics

NAS 8-31850 **Georgia Institute of Technology** **1917**
Computer processing of peach tree decline data

Period	Obligations	
02/13/76-11/01/77	FY77:	TOTAL: $29,987
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Dees, J. W.	MSFC/Downs, S. W., Jr.	
Faust, N. L.	MSFC/Paludan, C. T	39-Env Sci, NEC

NAS 8-31990 **Georgia Institute of Technology** **1918**
Digital analysis of LANDSAT data

Period	Obligations	
06/25/76-11/30/77	FY77:	TOTAL: $18,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Faust, C. E.	MSFC/Downs, S. W., Jr	
	MSFC/Bensko, J.	32-Geological Sci

NAS 8-32397 **Georgia Institute of Technology** **1919**
Digitizing of LANDSAT data

Period	Obligations	
01/13/77-01/12/78	FY77: $24,827	TOTAL: $24,827
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Shackelford, R. G.	MSFC/Downs, S. W., Jr.	
Faust, N. L.	MSFC/Huffman, J. D.	39-Env Sci, NEC

NAS 9-15283 **Georgia Institute of Technology** **1920**
Cost benefit analysis of Georgia natural resource inventory

Period	Obligations	
03/01/77-11/30/77	FY77: $40,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Zimmer, R. P.	JSC/Joyce, A. T.	39-Env Sci, NEC

NAS10-9097 **Georgia Institute of Technology** **1921**
Manatee tracking project: Development of a concept of location and movements of manatees

Period	Obligations	
03/11/77-04/10/78	FY77: $25,970	TOTAL: $25,970
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Michelson, R. C.	KSC/Keene, L. F.	49-Engr, NEC
	KSC/Murphy, J. L.	

NAS10-9210 **Georgia Institute of Technology** **1922**
Initial phase of study of lightning transients on buried cable

Period	Obligations	
07/25/77-09/25/77	FY77: $6,806	TOTAL: $6,806
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Woody, J. A.	KSC/Jafferis, W	31-Atmos Sci

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NGL 11-002-004 **Georgia Institute of Technology** **1923**
Theoretical and experimental research program in geophysics with emphasis on upper atmosphere chemical release studies

Period	*Obligations*	
09/27/62-05/31/80	FY77: $35,000	TOTAL: $815,075
Prin Invest	*NASA Tech Officer*	*CASE Category*
Edwards, H. D.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NSG 1288 **Georgia Institute of Technology** **1924**
Analysis of the gas core actinite transmutation reactor

Period	*Obligations*	
03/01/76-02/28/78	FY77: $55,041	TOTAL: $111,680
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clement, J. D. Rust, J. H.	LARC/Hohl, F.	19-Phys Sci, NEC

NSG 1307 **Georgia Institute of Technology** **1925**
Wing shielding in aircraft noise propagation

Period	*Obligations*	
06/01/76-11/30/77	FY77: $27,985	TOTAL: $44,015
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pierce, A. D. Hadden, W. J.	LARC/Preisser, J. S. LARC/Chestnutt, D. C.	13-Physics

NSG 1351 **Georgia Institute of Technology** **1926**
Elastic-plastic finite element analyses of fatique crack growth in mode I and mode II conditions

Period	*Obligations*	
01/01/77-05/31/78	FY77: $29,500	TOTAL: $29,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Atluri, S. N.	LARC/Newman, J. C., Jr. LARC/Leybold, H. A.	49-Engr, NEC

NSG 1352 **Georgia Institute of Technology** **1927**
Comparative evaluation of woven-graphite-epoxy composites

Period	*Obligations*	
02/01/77-01/31/78	FY77: $19,994	TOTAL: $19,994
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hanagud, S. V. Tayebi, A.	LARC/Elber, W.	47-Materials Engr

NSG 3015 **Georgia Institute of Technology** **1928**
Combustion and entropy noise in turbopropulsion systems

Period	*Obligations*	
07/15/74-07/14/77	FY77:	TOTAL $122,466
Prin Invest	*NASA Tech Officer*	*CASE Category*
Strahle, W. C.	LERC/Huff, R. G.	13-Physics

NSG 3036 **Georgia Institute of Technology** **1929**
Acoustic properties of turbofan inlets

Period	*Obligations*	
09/01/74-08/31/78	FY77 $23,352	TOTAL: $68,354
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zinn, B. T	LERC/Baumeister, K. J. LERC/Rice, E. J	41-Aero Engr

NSG 3052 **Georgia Institute of Technology** **1930**
Experimental determination of rocket injector response factor under reactive conditions

Period	*Obligations*	
03/01/75-03/01/78	FY77: $54,200	TOTAL $157,887
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zinn, B. T.	LERC/Priem, R. J.	42-Astro Engr

NSG 3106 **Georgia Institute of Technology** **1931**
Surface temperatures and glassy state investigations in tribology

Period	*Obligations*	
05/15/76-07/01/78	FY77: $30,005	TOTAL: $50,005
Prin Invest	*NASA Tech Officer*	*CASE Category*
Winer, W. O. Sanborn, D. M	LERC/Wedeven, L. D.	46-Mech Engr

NSG 5012 **Georgia Institute of Technology** **1932**
Research in millimeter wave techniques

Period	*Obligations*	
06/15/74-01/31/78	FY77: $150,000	TOTAL: $441,433
Prin Invest	*NASA Tech Officer*	*CASE Category*
McMillan, R. W. Gallagher, J. J.	GSFC/King, J. L. GSFC/Shiue, J. C.	45-Elec Engr

NSG 5082 **Georgia Institute of Technology** **1933**
Permittivity of sea water at millimeter wavelengths

Period	*Obligations*	
10/01/75-02/15/78	FY77:	TOTAL: $61,971
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dees, J. W	GSFC/King, J. L.	31-Atmos Sci

NSG 7069 **Georgia Institute of Technology** **1934**
Photocatalytic synthesis on planetary surfaces, molecular bases for the adaptation of halophilic microorganisms

Period	*Obligations*	
09/15/74-12/14/77	FY77: $19,586	TOTAL: $54,448
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hubbard, J. S.	HQ-SB/Young, R. S.	51-Biology

NAS 8-30884 **Georgia Southwestern College** **1935**
Research in geological-vegetative relationships

Period	*Obligations*	
09/01/74-12/31/77	FY77: $5,061	TOTAL: $54,023
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arden, D. D. Westra, R. N	MSFC/Paludan, C. T. MSFC/Jones, R. E.	32-Geological Sci

NAS 5-23571 **Morehouse College** **1936**
Application of medical information management system for medical record keeping

Period	*Obligations*	
06/09/76-11/09/77	FY77	TOTAL: $33,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Norris, T. E. Sullivan, L. W	GSFC/Alterescu, S. GSFC/Friedman, D. S.	52-Clinical Med

NGL 11-008-001 **Morehouse College** **1937**
A research program in atmospheric and astro chemistry
Period 05/22/72-04/01/78 *Obligations* FY77: TOTAL: $119,444
Prin Invest Gales, J. N.; Merideth, C. W.
NASA Tech Officer MSFC/Stephens, J. B.; MSFC/Kent, M. I.
CASE Category 12-Chemistry

NGT 11-008-004 **Morehouse College** **1938**
Training of undergraduate students in sciences and engineering
Period 06/01/74-05/31/78 *Obligations* FY77: $7,000 TOTAL: $28,000
Prin Invest Hall, J.
NASA Tech Officer HQ-P/Pohly, J. G.; HQ-U/Jenkins, H. G.
CASE Category 99-Multi-Discip

NSG 7269 **Morehouse College** **1939**
Atmospheric chemistry-mechanisms and kinetics of the reactions of ozone and stratospheric pollutants
Period 10/01/76-09/30/77 *Obligations* FY77: $40,000 TOTAL: $40,000
Prin Invest Hall, J.
NASA Tech Officer JPL/Demore, W.
CASE Category 31-Atmos Sci

NSG 8014 **Morehouse College** **1940**
A research program in magnetogasdynamics
Period 06/03/74-05/31/76 *Obligations* FY77: TOTAL: $15,906
Prin Invest Spight, C.
NASA Tech Officer MSFC/Shriver, E. L.; MSFC/Kent, M. I.
CASE Category 13-Physics

NSG 8020 **Morehouse College** **1941**
A study for a heavy atom tracer method for the measurement of turbulence in plasmas
Period 08/01/74-08/31/76 *Obligations* FY77: TOTAL: $61,222
Prin Invest Turner, J. M.
NASA Tech Officer MSFC/Stone, N. H.; MSFC/Kent, M. I.
CASE Category 13-Physics

NSG 8030 **Morehouse College** **1942**
Theoretical isotope effects to determine molecular structures Thermodynamics comparisons
Period 10/15/75-10/14/76 *Obligations* FY77: TOTAL: $38,948
Prin Invest Frazier, D. O
NASA Tech Officer MSFC/Clemons, J. M.; MSFC/Kent, M. I.
CASE Category 12-Chemistry

NSG 8039 **Morehouse College** **1943**
Analysis of pulsed magnetogasdynamic direct energy converter configurations
Period 06/01/76-06/02/78 *Obligations* FY77 $9,146 TOTAL $22,179
Prin Invest Spight, C
NASA Tech Officer MSFC/Vaughn, W. W.; MSFC/Kent, M. I.
CASE Category 13-Physics

NSG 8043 **Morehouse College** **1944**
A comprehensive examination of ion acoustic waves in multi-ion component plasmas
Period 09/15/76-09/14/79 *Obligations* FY77: $22,786 TOTAL: $22,786
Prin Invest Turner, J. M.
NASA Tech Officer MSFC/Burch, J. L.
CASE Category 13-Physics

NSG 8049 **Morehouse College** **1945**
Matrix-isolation-infrared and Raman studies of short-range intermolecular interactions
Period 03/08/77-03/07/78 *Obligations* FY77: $47,684 TOTAL: $47,684
Prin Invest Hall, J. H., Jr.
NASA Tech Officer MSFC/Clemons, J. M.; MSFC/Kent, M. I.
CASE Category 12-Chemistry

NSG 8027 **Morris Brown College** **1946**
Increasing adhesion of paracyclophane polymers to epoxy glass laminate surfaces
Period 06/01/75-10/01/77 *Obligations* FY77: $15,481 TOTAL: $38,074
Prin Invest Weaver, F
NASA Tech Officer MSFC/Patterson, W. J.; MSFC/Kent, M. I.
CASE Category 12-Chemistry

NAS 8-30619 **North Georgia College** **1947**
Correlation studies of remote sensing and fine beetle infestation
Period 04/09/74-09/30/77 *Obligations* FY77 TOTAL $19,788
Prin Invest Biesbrock, J. A.
NASA Tech Officer MSFC/Downs, S. W., Jr.; MSFC/Paludan, C. T.
CASE Category 51-Biology

NSG 8002 **Paine College** **1948**
Study of materials for space processing
Period 01/14/74-05/31/76 *Obligations* FY77 TOTAL $43,654
Prin Invest Owais, M.
NASA Tech Officer MSFC/Bannister, T. C.; MSFC/Kent, M. I.
CASE Category 13-Physics

NSG 803 **Savannah State College** **1949**
Toxic elements and organic degradation products in aquatic bodies and sediments around KSC
Period 09/23/74-12/07/77 *Obligations* FY77 $27,245 TOTAL $83,289
Prin Invest Ghuman, G. S.
NASA Tech Officer KSC/Perkins, F. F.
CASE Category 39-Env Sci, NEC

NSG 8048 **Savannah State College** **1950**
Research study of edge enhancement of multispectral imagery
Period 02/15/77-01/02/78 *Obligations* FY77 $19,569 TOTAL $19,569
Prin Invest Pao, M. T
NASA Tech Officer MSFC/Jayroe, R. R., Jr.; MSFC/Kent, M. I.
CASE Category 45-Elec Engr

GEORGIA (Continued)

NGT 11-013-001 — **Spelman College** — **1951**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/74-05/30/78	FY77: $7,000	TOTAL: $28,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Falconer, E.	HQ-P/Pohly, J. G. HQ-U/Jenkins, H. G.	99-Multi-Discip

NAS 8-31565 — **University of Georgia** — **1952**
Study to design variable orientation solar concentrators for space applications

Period	Obligations	
06/16/75-01/15/76	FY77:	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burkhard, D. G	MSFC/Clingman, J. H. MSFC/Whitacre, W. E	13-Physics

NAS 8-32149 — **University of Georgia** — **1953**
Design forward lighted solar concentrators for space applications

Period	Obligations	
07/07/76-06/01/77	FY77:	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burkhard, D. G.	MSFC/Wasserman, D.	13-Physics

NASW 2948 — **University of Georgia** — **1954**
Operation of the Computer Software Management Information Center

Period	Obligations	
07/01/76-12/31/77	FY77: $127,147	TOTAL: $218,797
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Harrison, J. O.	99-Multi-Discip

NGR 11-003-037 — **University of Georgia** — **1955**
Interpretation of stratigraphy and geologic mapping of Mars from Mariner/Mars 1971 television pictures

Period	Obligations	
05/24/72-04/14/78	FY77 $13,500	TOTAL $79,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Howard, J. H.	HQ-SL/Dwornik, S. E HQ-SL/Wahmann, R.	32-Geological Sci

HAWAII

NASR 5 — **University of Hawaii** — **1956**
Design, construction, and testing of a prototype high speed, high resolution rocket spectrograph

Period	Obligations	
01/01/61-08/31/75	FY77	TOTAL: $889,749
Prin Invest	*NASA Tech Officer*	*CASE Category*
McAllister, H. C	HQ-SA/Jordon, S. D HQ-ST/Timothy, A. F.	13-Physics

NASW 2326 — **University of Hawaii** — **1957**
Design development and fabrication of research equipment

Period	Obligations	
06/22/72-12/30/77	FY77:	TOTAL: $360,102
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jefferies, J. T.	HQ-SL/Strickland, A. T	11-Astronomy

NASW 2742 — **University of Hawaii** — **1958**
Construction and installation of a 3-meter aperture infrared telescope facility

Period	Obligations	
08/20/74-12/31/75	FY77:	TOTAL: $560,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jefferies, J. T.	HQ-BX/Weir, J. F. HQ-SL/Brunk, W. E.	11-Astronomy

NASW 2801 — **University of Hawaii** — **1959**
Construction of the three meter infrared telescope facility at Mauna Kea, Hawaii

Period	Obligations	
06/01/75-07/01/79	FY77 $938,200	TOTAL: $6,958,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jefferies, J. T.	HQ-BX/Weir, J. F. HQ-SL/Brunk, W. E.	11-Astronomy

NGL 12-001-011 — **University of Hawaii** — **1960**
Research in coronal and chromospheric physics

Period	Obligations	
11/16/64-10/31/77	FY77: $220,000	TOTAL: $3,639,234
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jefferies, J. T.	HQ-ST/Timothy, A. F.	11-Astronomy

NGL 12-001-042 — **University of Hawaii** — **1961**
Performance and capabilities of terrestrial organisms in extreme and unusually gaseous and liquid environments

Period	Obligations	
04/14/67-12/31/77	FY77:	TOTAL: $451,378
Prin Invest	*NASA Tech Officer*	*CASE Category*
Siegel, S. M	HQ-SB/Young, R. S.	51-Biology

NGL 12-001-057 — **University of Hawaii** — **1962**
Research in planetary studies

Period	Obligations	
05/21/68-06/30/80	FY77: $498,100	TOTAL: $3,561,472
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jefferies, J. T.	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F	11-Astronomy

NGR 12-001-075 — **University of Hawaii** — **1963**
Research in solar ultraviolet spectroscopy

Period	Obligations	
12/09/69-11/30/77	FY77: $200,000	TOTAL: $1,850,421
Prin Invest	*NASA Tech Officer*	*CASE Category*
McAllister, H. C	GSFC/Bissell, E. E HQ-ST/Timothy, A. F	11-Astronomy

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HAWAII (Continued)

NGR 12-001-109 **University of Hawaii** **1964**
N-heterocyclic compounds role in chemical evolution distribution in meteorites ancient sediments and as products of spark discharge reactions

Period	Obligations	
06/26/72-05/14/78	FY77: $35,936	TOTAL: $190,775
Prin Invest	NASA Tech Officer	CASE Category
Folsome, C E	HQ-SB/Young, R. S.	12-Chemistry

NGR 12-001-127 **University of Hawaii** **1965**
Operation of the Haleakala Lunar Ranging Observatory

Period	Obligations	
06/01/73-06/30/77	FY77:	TOTAL: $1,262,200
Prin Invest	NASA Tech Officer	CASE Category
Jefferies, J T.	HQ-SL/Strickland, A. T.	
Carter, W E		32-Geological Sci

NSG 3132 **University of Hawaii** **1966**
Digital simulation of dynamic stability and random paralleling of ERDA-NASA wind turbine generators with small power systems

Period	Obligations	
11/01/76-12/31/77	FY77 $44,304	TOTAL $44,304
Prin Invest	NASA Tech Officer	CASE Category
Hwang, H. H	LERC/Gilbert, L. J.	43-Elec Engr

NSG 5096 **University of Hawaii** **1967**
Abundance of boron in normal b and a type stars

Period	Obligations	
02/01/76-12/31/77	FY77: $7,280	TOTAL: $22,080
Prin Invest	NASA Tech Officer	CASE Category
Boesgaard, A M.	GSFC/Kupperian, J E., Jr.	
		11-Astronomy

NSG 5158 **University of Hawaii** **1968**
Determination of high resolution sound frequencies over the tropical oceans

Period	Obligations	
02/14/77-02/13/78	FY77: $12,000	TOTAL: $12,000
Prin Invest	NASA Tech Officer	CASE Category
Ramage, C S	GSFC/Pecom, J S	41-Atmos Sci

NSG 7179 **University of Hawaii** **1969**
Crustal deformation observations

Period	Obligations	
10/20/75-12/31/77	FY77 $168,596	TOTAL $345,865
Prin Invest	NASA Tech Officer	CASE Category
Berg, E	HQ-SL/Shirey, W H	19-Phys Sci, NEC
Sutton, G H		

NSG 7310 **University of Hawaii** **1970**
Spectroscopy of asteroids

Period	Obligations	
01/01/77-12/31/77	FY77 $30,200	TOTAL $30,200
Prin Invest	NASA Tech Officer	CASE Category
McCord, T B	HQ-SL/Brunk, W E	11-Astronomy
	HQ-SL/Fellows, R E	

NSG 7312 **University of Hawaii** **1971**
Remote compositional mapping of the lunar surface

Period	Obligations	
02/01/77-01/31/78	FY77: $295,950	TOTAL: $295,950
Prin Invest	NASA Tech Officer	CASE Category
McCord, T. B	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W L	32-Geological Sci

NSG 7323 **University of Hawaii** **1972**
Research in planetary astronomy

Period	Obligations	
02/01/77-01/31/78	FY77: $62,654	TOTAL: $62,654
Prin Invest	NASA Tech Officer	CASE Category
McCord, T. B.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. E.	

ILLINOIS

NSG 2188 **Chicago State University** **1973**
Gold, rhenium and silver partitioning in part of the system basalt-Fe-FeS

Period	Obligations	
07/01/76-01/31/78	FY77: $18,670	TOTAL: $18,670
Prin Invest	NASA Tech Officer	CASE Category
Methot, R L	ARC/Bunch, T. E	32-Geological Sci

NSG 3030 **Chicago State University** **1974**
The restoration of obliterated serial numbers by ultrasonically cavitated water

Period	Obligations	
07/01/74-01/15/78	FY77 $22,597	TOTAL $79,345
Prin Invest	NASA Tech Officer	CASE Category
Treptow, R S	LERC/Young, S G	99-Multi-Discip
	LERC/Allen, H., Jr	

NCA 2-320701 **Illinois Institute of Technology** **1975**
An assessment of future computer system features needed for large scale calculations

Period	Obligations	
07/01/76-11/30/77	FY77	TOTAL $19,962
Prin Invest	NASA Tech Officer	CASE Category
Forrester, R	ARC/White, J	22-Computer Sci

NSG 1120 **Illinois Institute of Technology** **1976**
Streamwise vortices in turbulent shear flows

Period	Obligations	
11/08/74-04/30/77	FY77	TOTAL $15,003
Prin Invest	NASA Tech Officer	CASE Category
Nagib, H M	LARC/Beckwith, I E	41-Aero Engr
Morkovin, M V	LARC/Stainback, P C	

NSG 1266 **Illinois Institute of Technology** **1977**
Automated sizing of aerospace structures under multiple constraints

Period	Obligations	
12/01/75-11/30/77	FY77: $40,000	TOTAL: $75,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Haftka, R. T.	LARC/Giles, G. L. LARC/Starnes, J. H., Jr.	41-Aero Engr

NSG 1451 **Illinois Institute of Technology** **1978**
Evaluation of a new concept for reducing free stream turbulence in wind tunnels

Period	Obligations	
09/01/77-02/28/78	FY77: $10,773	TOTAL: $10,773
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nagib, H. M.	LARC/Harvey, W. D.	41-Aero Engr

NSG 3141 **Illinois Institute of Technology** **1979**
Analysis of turbulent coaxial flow with internal energy generation

Period	Obligations	
02/14/77-02/13/78	FY77: $30,665	TOTAL: $30,665
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinstein, H.	LERC/Braun, W. H.	49-Engr, NEC

NSG 7039 **Illinois Institute of Technology** **1980**
Review of coaxial flows with application to gas core nuclear reactors

Period	Obligations	
06/01/74-06/30/76	FY77:	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinstein, H.	HQ-RR/Thom, K LARC/Hohl, F.	13-Physics

NGL 14-007-041 **Northwestern University** **1981**
A study of celestial objects of high angular momenta

Period	Obligations	
02/28/66-04/29/78	FY77: $20,000	TOTAL: $265,251
Prin Invest	*NASA Tech Officer*	*CASE Category*
Huang, S. S.	HQ-SA/Roman, N. G. HQ-SA/Rosendhal, J. D.	11-Astronomy

NGR 14-007-131 **Northwestern University** **1982**
Study of electronic factors in fracture of metals

Period	Obligations	
07/30/73-06/30/77	FY77:	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Waber, J. T.	LERC/Behrendt, D. R.	13-Physics

NGR 14-007-136 **Northwestern University** **1983**
Study of NASA and its laboratories in a changing environment

Period	Obligations	
11/01/73-03/31/77	FY77:	TOTAL: $34,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Radnor, M.	HQ-P/Morris, J. D.	99-Multi-Discip

NSG 2149 **Northwestern University** **1984**
Technological and economic factors affecting the retirement dates of commercial jet aircraft

Period	Obligations	
04/01/76-12/31/77	FY77: $22,412	TOTAL: $37,904
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spencer, F. A.	ARC/Williams, L. J. ARC/Waters, M. H.	41-Aero Engr

NSG 3039 **Northwestern University** **1985**
Investigation of interaction of turbine blade tips and labyrinth seals with housings of jet engines and gas turbines

Period	Obligations	
09/16/74-09/30/78	FY77:	TOTAL: $103,497
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burton, R. A.	LERC/Ludwig, L. P.	47-Materials Engr

NSG 3042 **Northwestern University** **1986**
Influence of high traction fluids on elastohydrodynamic traction

Period	Obligations	
01/15/75-12/14/77	FY77:	TOTAL: $9,982
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cheng, H. S.	LERC/Zaretsky, E. V.	46-Mech Engr

NSG 3143 **Northwestern University** **1987**
Dynamic load and lubrication of spiral bevel gears

Period	Obligations	
03/15/77-03/14/78	FY77: $33,249	TOTAL: $33,249
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cheng, H. S.	LERC/Coy, J. J. LERC/Zaretsky, E. V.	46-Mech Engr

NSG 3149 **Northwestern University** **1988**
Effects of debris dents and furrows on elastohydrodynamic lubrication

Period	Obligations	
05/01/77-04/30/78	FY77: $16,775	TOTAL: $16,775
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cheng, H. S.	LERC/Wedeven, L. D.	46-Mech Engr

NSG 5196 **Northwestern University** **1989**
Observations of the Perseus cluster with the SAS-3 satellite

Period	Obligations	
08/01/77-07/31/78	FY77: $5,000	TOTAL: $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ulmer, M. P.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NGR 14-008-026 **Southern Illinois University - Carbondale** **1990**
Characterization of developmental physiology of previously unstudied life form, obligately, halophilic blue-green algae, aphanothece halothytica

Period	Obligations	
05/08/73-10/01/77	FY77:	TOTAL: $143,134
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yopp, J. H.	HQ-SB/[illegible] S.	51-Biology

NSG 2238 **Southern Illinois University - Carbondale** **1991**
Development of an advanced avionics system for general aviation

Period	Obligations	
06/15/77-09/15/78	FY77: $12,968	TOTAL: $12,968
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCalla, T. M.	ARC/Callas, G. P.	21-Mathematics
	ARC/Denery, D. G.	

NAS 2-6551 **University of Chicago** **1992**
Pioneer F/G charged particle experiment data analysis

Period	Obligations	
08/09/71-09/30/77	FY77: $168,000	TOTAL: $1,180,640
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. I.	

NAS 5-11067 **University of Chicago** **1993**
IMP-H&J solar flare and isotope experiment

Period	Obligations	
06/11/68-11/30/77	FY77: $186,000	TOTAL: $1,838,304
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	GSFC/Davis, M. A.	13-Physics

NAS 5-20674 **University of Chicago** **1994**
Quasi ray electrons experiment for ISEE-C heliocentric orbit

Period	Obligations	
10/24/74-07/31/80	FY77: $284,970	TOTAL: $825,970
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	GSFC/Davis, M. A.	13-Physics

NGL 14-001-001 **University of Chicago** **1995**
Investigation of effects of solar and in interplanetary space

Period	Obligations	
08/01/60-12/31/79	FY77: $107,000	TOTAL: $1,079,372
Prin Invest	*NASA Tech Officer*	*CASE Category*
Parker, E. N.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NGL 14-001-005 **University of Chicago** **1996**
High altitude balloon investigations on composition, energy spectrum & intensity of primary cosmic radiation at high & intermediate geomagnetic latitudes

Period	Obligations	
05/01/61-10/31/79	FY77: $365,000	TOTAL: $5,077,258
Prin Invest	*NASA Tech Officer*	*CASE Category*
Meyer, P.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NGL 14-001-006 **University of Chicago** **1997**
Experimental and theoretical studies of energetic particles and electrodynamical processes in interplanetary space and in vicinity of planets

Period	Obligations	
08/01/61-12/31/78	FY77: $510,840	TOTAL: $5,587,396
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NGL 14-001-010 **University of Chicago** **1998**
Research and investigation of origin, age and composition of meteorites

Period	Obligations	
03/11/63-03/31/80	FY77: $105,400	TOTAL: $1,422,803
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anders, E.	HQ-SL/French, B. M.	32-Geological Sci
Lewis, R. S.	HQ-SL/Quaide, W. L.	

NGL 14-001-167 **University of Chicago** **1999**
Lunar sample analysis

Period	Obligations	
03/29/72-01/31/80	FY77: $157,190	TOTAL: $1,339,020
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anders, E.	JSC/Harris, J. W.	13-Physics

NGL 14-001-169 **University of Chicago** **2000**
Lunar sample analysis

Period	Obligations	
01/19/71-01/31/80	FY77: $121,588	TOTAL: $652,818
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clayton, R. N.	JSC/Harris, J. W.	12-Chemistry

NGL 14-001-171 **University of Chicago** **2001**
Lunar sample analysis

Period	Obligations	
01/19/71-01/31/80	FY77: $72,326	TOTAL: $515,406
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, J. V.	JSC/Harris, J. W.	13-Physics

NGL 14-001-258 **University of Chicago** **2002**
Advanced technical developments in support of scientific experiments in space

Period	Obligations	
06/15/73-06/30/78	FY77: $250,000	TOTAL: $1,050,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	HQ-P/Carter, C. H.	99-Multi-Discip

NGR 14-001-008 **University of Chicago** **2003**
Meteorological interpretation of satellite radiation data

Period	Obligations	
09/01/70-11/30/77	FY77: $73,000	TOTAL: $1,282,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fujita, T. T.	GSFC/Wexler, R.	31-Atmos Sci

NGR 14-001-135 **University of Chicago** **2004**
Feasibility of the alpha scattering technique for Martian surface analysis

Period	Obligations	
02/25/69-10/31/77	FY77: $79,176	TOTAL: $639,028
Prin Invest	*NASA Tech Officer*	*CASE Category*
Turkevich, A. L.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NGR 14-001-147 **University of Chicago** **2005**
Interferometric high-resolution spectroscopy of optical interstellar lines

Period	Obligations	
03/18/70-12/31/77	FY77: $28,702	TOTAL: $201,160
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hobbs, L. M.	HQ-SA/Roman, N. G.	11-Astronomy
	HQ-SA/Rosendhal, J. D.	

NGR 14-001-194 **University of Chicago** **2006**
Quantitative spectroscopy of planetary atmospheres

Period	Obligations	
07/20/71-04/14/79	FY77:	TOTAL: $190,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaplan, L. D.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

NGR 14-001-211 **University of Chicago** **2007**
Far infrared photometry of H II regions and planets using the NASA 30 cm flying infrared telescope

Period	Obligations	
02/14/72-11/01/77	FY77: $40,000	TOTAL: $259,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harper, D. A., Jr.	ARC/Cameron, R. M.	11-Astronomy
	ARC/Mason, R. H.	

NGR 14-001-225 **University of Chicago** **2008**
Physiology of the vestibular system of the squirrel monkey

Period	Obligations	
05/12/67-12/01/77	FY77: $40,000	TOTAL: $332,893
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goldberg, J. M.	ARC/Daunton, N. G.	51-Biology
Fernandez, C.		

NGR 14-001-227 **University of Chicago** **2009**
Photometry of galactic and extragalactic far infrared sources using the 91.5 cm airborne infrared telescope

Period	Obligations	
02/27/73-03/31/78	FY77: $77,033	TOTAL: $363,207
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harper, D. A., Jr.	ARC/Gillespie, C. M., Jr.	11-Astronomy
	ARC/McClenahan, J. O.	

NGR 14-001-249 **University of Chicago** **2010**
Physical properties of solar nebula as deduced from chondrites

Period	Obligations	
05/14/73-03/31/80	FY77: $92,85[illegible]	TOTAL: $448,119
Prin Invest	*NASA Tech Officer*	*CASE Category*
Grossman, L.	HQ-SL/French, B. M.	32-Geological Sci
Shendrikar, A. D.	HQ-SL/Quaide, W. L.	
Davis, A. M.		

NSG 2057 **University of Chicago** **2011**
Study of sensitive detection system for far infrared astronomy

Period	Obligations	
12/01/74-09/30/78	FY77: $35,000	TOTAL: $95,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hildebrand, R. H.	ARC/Gillespie, C. M., Jr.	11-Astronomy
	ARC/Cameron, R. M.	

NSG 5068 **University of Chicago** **2012**
High resolution observations of the diffuse Lyman alpha sky background

Period	Obligations	
07/01/75-06/30/77	FY77:	TOTAL: $8,527
Prin Invest	*NASA Tech Officer*	*CASE Category*
Parker, E. N.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5202 **University of Chicago** **2013**
Study of interstellar clouds containing atomic and molecular constituents

Period	Obligations	
09/01/77-08/31/78	FY77: $12,500	TOTAL: $12,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7212 **University of Chicago** **2014**
Nuclear astrophysics effects in meteoritic and lunar material

Period	Obligations	
03/01/76-02/28/78	FY77: $37,199	TOTAL: $68,762
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schramm, D. N.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7288 **University of Chicago** **2015**
Magnetospheric and interplanetary investigations based on data from instruments on the Mariner-10 mission to Mars

Period	Obligations	
11/01/76-10/31/77	FY77: $40,003	TOTAL: $40,003
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simpson, J. A.	HQ-ST/Taylor, W. W.	31-Atmos Sci
	HQ-ST/Schmerling, E. R.	

NSG 7303 **University of Chicago** **2016**
Applications of electron microscopy in molecular exobiology and extraterrestrial research

Period	Obligations	
12/01/76-08/01/77	FY77: $50,000	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moran, H. F.	HQ-SB/Larson, C. A.	51-Biology
	HQ-SB/Winter, D. L.	

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NSG 7356 **University of Chicago** **2017**
Balloon-borne spectroscopy of stratospheric constituents

Period	Obligations	
06/01/77-09/31/77	FY 77, $49,996	TOTAL $49,996

Prin. Invest.	NASA Tech. Officer	CASE Category
Kaplan, L. D.	HQ-SU/Tilford, S. G.	31-Atmos. Sci.
Zander, R.	HQ-SU/Simon, N. K.	

NCA 2-330701 **University of Illinois - Chicago Circle** **2018**
Improved models for computing the effects of aerosols on atmospheric radiation

Period	Obligations	
10/15/76-11/01/77	FY 77 $15,625	TOTAL $15,625

Prin. Invest.	NASA Tech. Officer	CASE Category
Krinsley, D.	ARC Pollack, J. B.	31-Atmos. Sci.
Greeley, R.		

NSG 1150 **University of Illinois - Chicago Circle** **2019**
A kinetic-theory approach to turbulent mixing and combustion

Period	Obligations	
03/01/75-10/31/77	FY 77 $40,737	TOTAL $83,268

Prin. Invest.	NASA Tech. Officer	CASE Category
Chung, P. M.	LARC Evans, J. S.	41-Aero. Engr.
Komar, J. J.	LARC Beach, H. L., Jr.	

NSG 7247 **University of Illinois - Chicago Circle** **2020**
Inverse problems in physics and geophysics

Period	Obligations	
07/01/76-06/30/77	FY 77	TOTAL $30,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Barcilon, V.	HQ-RR/Randolph, J. P.	21-Mathematics
Kaplan, I.	JPL Chahine, M.	

NAS 1-14731 **University of Illinois - Urbana** **2021**
Investigation of predictive display symbology for terminal configured vehicle

Period	Obligations	
12/20/76-12/04/77	FY 77 $83,313	TOTAL $83,313

Prin. Invest.	NASA Tech. Officer	CASE Category
Jensen, R. S.	LARC Salmirs, S.	41-Aero. Engr.
	LARC Schult, E. D.	

NAS 5-24275 **University of Illinois - Urbana** **2022**
Application and design refinement of the massively parallel processing computer

Period	Obligations	
09/12/77-08/19/80	FY 77 $55,000	TOTAL $55,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Slotnick, D. L.	GSFC Schaefer, D. H.	49-Elec. Engr.

NAS 9-15328 **University of Illinois - Urbana** **2023**
Definition of Spacelab I experiment on effects of prolonged weightlessness on the humoral response in humans

Period	Obligations	
07/15/77-01/01/78	FY 77 $11,315	TOTAL $11,315

Prin. Invest.	NASA Tech.	CASE Category
Voss, L. W.	JSC Melgaard,	59-Life Sci., NEC

NGL 14-005-140 **University of Illinois - Urbana** **2024**
Research on fluid dynamic and heat transfer problems of modern air breathing propulsive systems

Period	Obligations	
05/23/69-05/31/79	FY 77	TOTAL $257,661

Prin. Invest.	NASA Tech. Officer	CASE Category
Chow, W. L.	LERC/Bober, L. J.	41-Aero. Engr.

NGR 14-005-149 **University of Illinois - Urbana** **2025**
Study of local pressure field in turbulent shear flow and its relation to aerodynamic noise generation

Period	Obligations	
02/10/70-06/30/76	FY 77	TOTAL $195,040

Prin. Invest.	NASA Tech. Officer	CASE Category
Jones, B. G.	LERC Karchmer, A. M.	41-Aero. Engr.
	LERC Dorsch, R. G.	

NGR 14-005-176 **University of Illinois - Urbana** **2026**
Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26cm

Period	Obligations	
05/22/72-07/31/78	FY 77 $21,924	TOTAL $80,437

Prin. Invest.	NASA Tech. Officer	CASE Category
Dickel, J. R.	HQ-SL Brunk, W. E.	11-Astronomy
	HQ-SL Quade, W. L.	

NGR 14-005-181 **University of Illinois - Urbana** **2027**
Rocket studies of the lower ionosphere

Period	Obligations	
08/01/71-12/30/77	FY 77 $360,000	TOTAL $2,684,817

Prin. Invest.	NASA Tech. Officer	CASE Category
Bowhill, S. A.	WFC Ballance, C. W., Jr.	
	WFC Gray, J. W.	19-Phys. Sci., NEC

NGR 14-005-194 **University of Illinois - Urbana** **2028**
Low noise level general aviation propeller

Period	Obligations	
11/09/72-01/31/77	FY 77	TOTAL $192,854

Prin. Invest.	NASA Tech. Officer	CASE Category
Ormsbee, A. I.	LARC Stickle, J. W.	41-Aero. Engr.
Sivier, K. R.		

NGR 14-005-200 **University of Illinois - Urbana** **2029**
Studies of discharge mechanisms occurring in high pressure gases with applications to high efficiency high power lasers

Period	Obligations	
04/06/73-10/01/78	FY 77	TOTAL $149,860

Prin. Invest.	NASA Tech. Officer	CASE Category
Verdeyen, J. T.	LERC Dunning, J. W., Jr.	13-Physics
Cherrington, B. E.		

ILLINOIS (Continued)

NGR 14-005-202 **University of Illinois - Urbana** **2030**
Implementation of Illiac IV algorithms for multispectral image interpretation

Period	Obligations	
02/27/73-09/30/78	FY77: $96,472	TOTAL: $283,836
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ray, R. M.	ARC/Slye, R. E. ARC/Briggs, B. R.	22-Computer Sci

NSG 1063 **University of Illinois - Urbana** **2031**
Nuclear induced plasma kinetics

Period	Obligations	
06/01/74-05/31/78	FY77: $26,000	TOTAL: $108,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Miley, G. H.	LARC/Hohl, F.	13-Physics

NSG 1400 **University of Illinois - Urbana** **2032**
Development of scaling laws for granular materials discharged from an agricultural airplane

Period	Obligations	
03/01/77-12/31/77	FY77: $10,224	TOTAL: $10,224
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ormsbee, A. I.	LARC/Jordan, F. L., Jr	19-Phys Sci, NEC

NSG 1434 **University of Illinois - Urbana** **2033**
Development of methods for predicting and measuring distribution patterns of aerial sprays

Period	Obligations	
06/21/77-10/20/77	FY77: $15,288	TOTAL: $15,288
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ormsbee, A. I. Butler, B. J. Jacobsen, B. J.	LARC/Jordan, F. L., Jr	41-Aero Engr

NSG 2099 **University of Illinois - Urbana** **2034**
Neural control of locomotor performance in insects

Period	Obligations	
09/01/75-01/31/78	FY77:	TOTAL: $57,209
Prin Invest	**NASA Tech Officer**	**CASE Category**
Heath, J. F. May, M.	ARC/Williams, B. A	51-Biology

NSG 2119 **University of Illinois - Urbana** **2035**
Pilot interaction with automated airborne decision making systems

Period	Obligations	
11/01/75-08/20/78	FY77: $58,575	TOTAL: $132,660
Prin Invest	**NASA Tech Officer**	**CASE Category**
Rouse, W. B	ARC/Wempe, T. F.	99-Multi-Discip

NSG 3008 **University of Illinois - Urbana** **2036**
The analysis of the structure of blast waves from accidental explosions

Period	Obligations	
03/10/74-10/31/77	FY77:	TOTAL: $144,845
Prin Invest	**NASA Tech Officer**	**CASE Category**
Strehlow, R. A.	LERC/Ordin, P.	13-Physics

NSG 3043 **University of Illinois - Urbana** **2037**
The effect of a zero g environment on flammability limits as determined using a standard flammability tube apparatus

Period	Obligations	
05/21/75-05/20/78	FY77: $25,000	TOTAL: $75,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Strehlow, R. A.	LERC/Haggard, J. B.	43-Chem Engr

NSG 3098 **University of Illinois - Urbana** **2038**
Transient dynamic analysis of high-speed lightly loaded cylindrical roller bearings

Period	Obligations	
06/06/76-01/15/78	FY77:	TOTAL: $22,510
Prin Invest	**NASA Tech Officer**	**CASE Category**
Conry, T. F.	LERC/Scribbe, H. W.	46-Mech Engr

NSG 5049 **University of Illinois - Urbana** **2039**
Effects of atmospheric refraction and turbulence on the accuracy of laser systems

Period	Obligations	
02/01/75-11/30/77	FY77: $36,442	TOTAL: $100,172
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gardner, C. S.	GSFC/Bufton, J. L. GSFC/Fitzmaurice, M. W.	19-Phys Sci, NEC

NSG 5213 **University of Illinois - Urbana** **2040**
Studies of the transport of nitric acid using AE satellite data

Period	Obligations	
10/01/77-09/30/78	FY77: $24,957	TOTAL: $24,957
Prin Invest	**NASA Tech Officer**	**CASE Category**
Sechrist, C. F., Jr	GSFC/Spencer, N. W.	13-Physics

NSG 7044 **University of Illinois - Urbana** **2041**
Evolution of the cell and the translation process

Period	Obligations	
06/01/74-05/31/78	FY77: $65,000	TOTAL: $177,300
Prin Invest	**NASA Tech Officer**	**CASE Category**
Woese, C. R.	HQ-SB/Young, R. S.	12-Chemistry

W-14133 **University of Illinois - Urbana** **2042**
Conference on the Middle Atmosphere Program (MAP)

Period	Obligations	
06/24/76-04/01/77	FY77:	TOTAL: $4,890
Prin Invest	**NASA Tech Officer**	**CASE Category**
Unavailable	HQ-SU/King, J.	31-Atmos Sci

INDIANA

NCA 8-121 **Ball State University** **2043**
Investigation of cylindrical Fresnel lens as a solar collector

Period	Obligations	
12/10/75-10/09/76	FY77:	TOTAL: $22,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Cosby, R. M.	MSFC/Hastings, L. J.	49-Engr, NEC

NCA 8-127 **Ball State University** **2044**
A joint project for study of cylindrical Fresnel lens as a solar concentrator

Period	Obligations	
01/18/77-07/17/77	FY77 $12,000	TOTAL $12,000
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Cosby, R. M	MSFC/Hastings, L. J.	49-Engr, NEC

NCA 8-129 **Ball State University** **2045**
A joint project for study of cylindrical Fresnel lens as a solar concentrator

Period	Obligations	
08/10/77-11/09/77	FY77 $3,500	TOTAL $3,500
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Cosby, R. M	MSFC/Hastings, L. J.	49-Engr, NEC

NAS 5-22987 **Indiana University - Bloomington** **2046**
Digital techniques applied to surface photometry of low contrast astronomical objects

Period	Obligations	
02/11/76-07/31/78	FY77 $23,837	TOTAL $38,685
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Burkhead, M. S.	GSFC/Hobbs, R. W.	11-Astronomy
	GSFC/Brandt, J. C.	

NASW 2714 **Indiana University - Bloomington** **2047**
Operation of a regional dissemination center

Period	Obligations	
10/01/74-09/30/78	FY77	TOTAL $209,899
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Shriner, H.	HQ-KT/Holley, H. T.	99-Multi-Discip

NASW 2845 **Indiana University - Bloomington** **2048**
Operation of a NASA Industrial Applications Center

Period	Obligations	
10/01/75-06/30/76	FY77	TOTAL $160,700
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Shriner, R. D.	HQ-KT/Bivins, R. G.	99-Multi-Discip
	HQ-KT/Voris, R. M.	

NCA 2-335702 **Indiana University - Bloomington** **2049**
Relationships between carbon, noble gases, and mineralogy in carbonaceous meteorites

Period	Obligations	
02/01/77-01/31/79	FY77 $17,600	TOTAL $17,600
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Haves, J. M.	ARC/Chang, S.	12-Chemistry

NGL 15-003-002 **Indiana University - Bloomington** **2050**
A theoretical investigation of the steady state interaction between radiation and matter in stellar atmospheres

Period	Obligations	
07/17/63-12/31/76	FY77	TOTAL $332,477
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Johnson, H. R.	HQ-SA/Rosendhal, J. D.	11-Astronomy

NGR 15-003-105 **Indiana University - Bloomington** **2051**
Lunar sample analysis

Period	Obligations	
01/26/71-07/31/77	FY77	TOTAL $179,483
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Meinschein, W. G.	JSC/Harris, J. W.	12-Chemistry

NGR 15-003-118 **Indiana University - Bloomington** **2052**
Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry

Period	Obligations	
06/20/72-05/31/78	FY77 $76,000	TOTAL $413,966
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Haves, J. M.	HQ-SB/Young, R. S.	32-Geological Sci

NSG 1319 **Indiana University - Bloomington** **2053**
An evaluation of potential space shuttle experiments on physicochemical instabilities

Period	Obligations	
08/15/76-08/14/77	FY77	TOTAL $16,006
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Ortoleva, P.	LARC/Conway, E. J.	12-Chemistry

NAS 2-7927 **Indiana Univ. - Indianapolis** **2054**
Radiobiological tests on mouse tissue

Period	Obligations	
01/01/74-12/31/76	FY77	TOTAL $23,621
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Zeman, W.	ARC/Haymaker, W. T.	51-Biology

NAS 3-18010 **Purdue University** **2055**
Research on multiple pure tone noise on a supersonic rotor propagating in an acoustically treated duct

Period	Obligations	
08/13/73-11/12/75	FY77	TOTAL $38,207
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Vadya, P. G.	LERC/Mixner, G. T.	41-Aero Engr

NAS 5-20793 **Purdue University** **2056**
Analysis of data for ERTS follow-on investigation

Period	Obligations	
03/25/75-01/25/77	FY77	TOTAL $120,000
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Bauer, M. E.	GSFC/Stonesifer, G. R.	59-Life Sci, NEC

NAS 5-22816 **Purdue University** **2057**
Utility of correlation techniques on gravity and magnetic interpretation study

Period	Obligations	
11/24/75-03/15/78	FY77 $25,000	TOTAL $48,489
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Hinze, W. J.	GSFC/Langel, R. A.	32-Geological Sci
Braile, L. W.		

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NAS 6-2695 **Purdue University** **2058**
Services in support of a remote Laesys Terminal Flight Center

Period	Obligations	
11/15/75-10/31/77	FY77: $7,851	TOTAL: $28,686

Prin. Invest.	NASA Tech. Officer	CASE Category
Phillips, T. L	WFC/Maurer, H. L	39-Env. Sci, NEC
Schwingendorf, S	WFC/Hancock, D. W	

NAS 6-2816 **Purdue University** **2059**
Develop plan to assemble SAR/LANDSAT data sets

Period	Obligations	
03/01/77-02/28/78	FY77: $30,068	TOTAL: $30,068

Prin. Invest.	NASA Tech. Officer	CASE Category
Anuta, P. E	WFC/Maurer, H. L.	99-Multi-Discip
	WFC/McGoogan, J. T	

NAS 9-14970 **Purdue University** **2060**
Applications research and techniques development for remote sensing

Period	Obligations	
06/01/76-11/30/77	FY77: $1,149,625	TOTAL: $1,770,225

Prin. Invest.	NASA Tech. Officer	CASE Category
Landgrebe, D. A	JSC/Erickson, J. D	39-Env. Sci, NEC

NAS 9-15081 **Purdue University** **2061**
Technical coordination and implementation of remote sensing experiments for analogous vegetative areas in the United States and the Soviet Union

Period	Obligations	
08/01/76-12/31/77	FY77: $96,000	TOTAL: $136,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Bauer, M. E	JSC/Childs, L. F	39-Env. Sci, NEC
	JSC/McEwen, M. C	

NAS 9-15325 **Purdue University** **2062**
Develop an operational forest resource information system

Period	Obligations	
10/01/77-09/30/80	FY77: $75,000	TOTAL: $75,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Mroczynski, R	JSC/Joosten, R. F	39-Env. Sci, NEC

NGL 15-005-140 **Purdue University** **2063**
Origin of chondrites from relationships between fourteen key trace elements

Period	Obligations	
06/21/71-02/28/78	FY77: $63,000	TOTAL: $368,437

Prin. Invest.	NASA Tech. Officer	CASE Category
Lipschutz, M. E	HQ-SL/French, B. M	32-Geological Sci
	HQ-SL/Hinn, E. A	

NGL 15-005-186 **Purdue University** **2064**
Application of remote sensing technology to solution of problems in management of resources

Period	Obligations	
06/19/73-05/31/80	FY77: $200,000	TOTAL: $1,195,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Weismiller, R. A	HQ-P/Vitale, J. A	39-Env. Sci, NEC

NGR 15-005-119 **Purdue University** **2065**
Research on lift and viscous cross flow

Period	Obligations	
02/06/70-02/28/77	FY77	TOTAL: $138,729

Prin. Invest.	NASA Tech. Officer	CASE Category
Marshall, F. J	LARC/Landrum, E. J	41-Aero. Engr
	LARC/Barger, R. L.	

NGR 15-005-157 **Purdue University** **2066**
Lunar sample analysis

Period	Obligations	
03/01/72-02/01/78	FY77: $27,000	TOTAL: $128,224

Prin. Invest.	NASA Tech. Officer	CASE Category
Meyer, H. O	JSC/Harris, J. W	13-Physics

NGR 15-005-162 **Purdue University** **2067**
Flow characteristics in aircraft inlets

Period	Obligations	
05/12/72-12/31/78	FY77	TOTAL: $49,973

Prin. Invest.	NASA Tech. Officer	CASE Category
Hoffman, J. D	LERC/Bishop, V. R	41-Aero. Engr

NGR 15-005-191 **Purdue University** **2068**
Calculation of the flow field and the viscous inviscid flow interaction in aircraft inlets

Period	Obligations	
01/01/74-01/31/78	FY77: $17,042	TOTAL: $107,222

Prin. Invest.	NASA Tech. Officer	CASE Category
Hoffman, J. D	LERC/Bishop, V. R	41-Aero. Engr

NSG 1278 **Purdue University** **2069**
Frequency effect on fatigue behavior of laminated composites

Period	Obligations	
01/09/76-11/08/77	FY77: $31,419	TOTAL: $54,736

Prin. Invest.	NASA Tech. Officer	CASE Category
Sun, C. T	LARC/Roderick, G. L	47-Materials Engr
	LARC/Whitcomb, J. D	

NSG 1293 **Purdue University** **2070**
Noise in turbulent flow

Period	Obligations	
04/01/76-09/30/77	FY77	TOTAL: $22,478

Prin. Invest.	NASA Tech. Officer	CASE Category
Kentzer, C. P	LARC/Pao, S. P	41-Aero. Engr
	LARC/Maestrello, L	

NSG 2135 **Purdue University** **2071**
Time dependent transport of energy in the wall region of the compressible turbulent boundary layer

Period	Obligations	
03/01/76-02/28/78	FY77: $39,349	TOTAL: $74,826

Prin. Invest.	NASA Tech. Officer	CASE Category
Walker, J. D	ARC/Marvin, J. G	41-Aero. Engr
	ARC/Rubesin, M. W	

NSG 2158 **Purdue University** **2072**
Study of rationalization of the airline route structure for greater efficiency, reduced energy consumption and improved service

Period	Obligations	
06/01/76-12/31/77	FY77:	TOTAL: $20,790
Prin Invest	*NASA Tech Officer*	*CASE Category*
Drake, J. W.	ARC/Williams, L. J.	41-Aero Engr

NSG 2192 **Purdue University** **2073**
Joint cooperative program in computer graphics

Period	Obligations	
11/01/76-12/31/78	FY77: $74,705	TOTAL: $74,705
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D. C.	ARC/Gregory, T. J.	22-Computer Sci

NSG 3029 **Purdue University** **2074**
Multiple pure tone noise radiation from a supersonic rotor in an acoustically treated duct

Period	Obligations	
08/11/74-02/11/76	FY77	TOTAL: $54,802
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peterson, A. M.	LERC/Feiler, C. E.	46-Mech Engr
Despain, A. M.	LERC/Rice, E. J.	
Kisner, L. S.		

NSG 3071 **Purdue University** **2075**
Gas film cooling of turbine vane surfaces

Period	Obligations	
09/01/75-08/31/78	FY77:	TOTAL $53,067
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lecuyer, M. R.	LERC/Davidson, H. W.	41-Aero Engr

NSG 3105 **Purdue University** **2076**
Expanding capabilities of NASA computer programs for fluid flow computations in turbomachinery

Period	Obligations	
06/01/76-05/31/79	FY77.	TOTAL $56,131
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thompson, H. D.	LERC/Katsanis, T.	41-Aero Engr
Ragsdell, K. M.		

NSG 3119 **Purdue University** **2077**
An adaptive controller for an aircraft gas turbine propulsion system

Period	Obligations	
09/01/76-08/31/79	FY77.	TOTAL $60,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leonard, R. G.	LERC/Lehtinen, B.	41-Aero Engr

NSG 3135 **Purdue University** **2078**
Aerodynamics parameters affecting turbopropeller performance

Period	Obligations	
01/15/77-01/14/78	FY77 $51,134	TOTAL: $51,134
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sullivan, J. P.	LERC/Serafini, J. S.	41-Aero Engr

NSG 4003 **Purdue University** **2079**
Handling and ride qualities of large flexible control-configured aircraft

Period	Obligations	
01/01/75-06/30/79	FY77: $21,414	TOTAL: $139,709
Prin Invest	*NASA Tech Officer*	*CASE Category*
Swaim, R. L.	DFRC/Berry, D. T.	41-Aero Engr
	DFRC/Cazier, F. W.	

NSG 5010 **Purdue University** **2080**
Investigations pertaining to encoding of multispectral scanner data

Period	Obligations	
06/15/74-10/14/76	FY77:	TOTAL: $75,955
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wintz, P. A.	GSFC/Lynch, T. J.	32-Geological Sci

NSG 7167 **Purdue University** **2081**
High-time resolution photometry of flare stars simultaneous with X-ray satellite observations

Period	Obligations	
10/01/75-09/30/77	FY77:	TOTAL: $14,531
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moffett, T. J.	HQ-SA/Rosendhal, J. D.	11-Astronomy
	HQ-SA/Roman, N. G.	

NSG 7278 **Purdue University** **2082**
Characterization and elucidation of the mechanism of mechanical stress inhibition of plant growth

Period	Obligations	
10/01/76-09/30/77	FY77: $28,476	TOTAL $28,476
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mitchell, C. A.	HQ-SB/Halstead, T. W.	51-Biology
	HQ-SB/Young, R. S.	

NAS 3-20087 **University of Notre Dame** **2083**
Study of burning of liquid pools in reduced gravity

Period	Obligations	
02/23/76-06/[illegible]/77	FY77.	TOTAL: $27,898
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kanury, A. M.	LERC/Cochran, T. H.	12-Chemistry

NAS 3-21018 **University of Notre Dame** **2084**
Feasibility study of liquid pool burning in reduced gravity

Period	Obligations	
07/28/77-11/09/78	FY77 $29,471	TOTAL: $29,471
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kanury, A. M.	LERC/Haggard, J. B.	11-Astronomy

NSG 3037 **University of Notre Dame** **2085**
Influence of blade loading on the acoustic response of a cascade

Period	Obligations	
08/15/74-01/14/78	FY77	TOTAL: $56,115
Prin Invest	*NASA Tech Officer*	*CASE Category*
Atassi, H.	LERC/Feiler, C. E.	41-Aero Engr
Berg, D.	LERC/Goldstein, M. E.	

INDIANA (Continued)

NSG 3048 **University of Notre Dame** **2086**
Alternatives for jet engine control

Period	Obligations	
03/01/75-02/28/78	FY77: $33,000	TOTAL: $88,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Welch, W. J.	LERC/Lehtinen, B	45-Elec Engr
Sain, M. K.		

NSG 3133 **University of Notre Dame** **2087**
Correlation of single stage data to obtain improved models for loss in axial compressors

Period	Obligations	
11/01/76-11/09/78	FY77: $34,877	TOTAL: $34,877
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kanury, A. M.	LERC/Haggard, J. B.	41-Aero Engr

NSG 5025 **University of Notre Dame** **2088**
Coordinated research design of coding and modulation systems

Period	Obligations	
09/01/74-02/28/77	FY77:	TOTAL: $57,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Massey, J. L.	GSFC/Lynch, T. J.	45-Elec Engr

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NCA 2-340701 **Iowa State University** **2089**
Simulation of Martian eolian phenomena

Period	Obligations	
09/01/76-08/31/78	FY77:	TOTAL: $12,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Iversen, J. D.	ARC/Pollack, J. B.	49-Engr, NEC

NCA 2-340703 **Iowa State University** **2090**
Water vapor opacity model in cool star atmospheres and rock core models of Jupiter and Saturn

Period	Obligations	
10/30/76-10/29/77	FY77: $9,102	TOTAL: $9,102
Prin Invest	*NASA Tech Officer*	*CASE Category*
Grossman, A. S.	ARC/Pollack, J. B	11-Astronomy
	ARC/Reynolds, R. T.	

NCA 2-340704 **Iowa State University** **2091**
Two-dimensional shock diffraction

Period	Obligations	
04/01/77-03/31/78	FY77: $18,963	TOTAL: $18,963
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D. A.	ARC/Kutler, P.	49-Engr, NEC

NCA 2-340705 **Iowa State University** **2092**
Optimal nodal point distribution for finite difference error control

Period	Obligations	
04/01/77-06/30/78	FY77: $9,977	TOTAL: $9,977
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pierson, B. L.	ARC/Kutler, P.	49-Engr, NEC

NCA 2-340706 **Iowa State University** **2093**
Acceleration of implicit finite-difference algorithms for convection equations

Period	Obligations	
06/01/77-05/31/78	FY77: $11,178	TOTAL: $11,178
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tannehill, J. C.	ARC/Steger, J. L.	21-Mathematics

NGR 16-002-038 **Iowa State University** **2094**
Calculation of viscous compressible flow

Period	Obligations	
10/07/71-03/31/78	FY77: $23,391	TOTAL: $115,190
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tannehill, J. C.	ARC/Rakich, J. V.	41-Aero Engr

NSG 1372 **Iowa State University** **2095**
Periodic analysis of large space structures

Period	Obligations	
01/01/77-06/30/78	FY77: $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McDaniel, T. J.	LARC/Frahich, R. W.	49-Engr, NEC
Pierson, B. L.	LARC/Pinson, L. D.	

NSG 2040 **Iowa State University** **2096**
Role of turbulence in vortex wake decay

Period	Obligations	
09/01/74-09/30/78	FY77: $30,000	TOTAL: $118,918
Prin Invest	*NASA Tech Officer*	*CASE Category*
Iversen, J. D.	ARC/Rossow, V. J	41-Aero Engr
	ARC/Corsiglia, V. R.	

NSG 2091 **Iowa State University** **2097**
Study of viscous cross-flow effects on cylinders at high Reynolds numbers

Period	Obligations	
07/01/75-12/31/77	FY77: $47,344	TOTAL: $81,844
Prin Invest	*NASA Tech Officer*	*CASE Category*
James, W. D.	ARC/Malcolm, G. N.	41-Aero Engr
	ARC/Chapman, G. T.	

NSG 2150 **Iowa State University** **2098**
A study on parameter identifiability and accuracy of system models

Period	Obligations	
04/01/76-12/31/77	FY77:	TOTAL: $19,883
Prin Invest	*NASA Tech Officer*	*CASE Category*
Herget, C. J.	ARC/Chapman, G. T.	41-Aero Engr

NSG 2152 **Iowa State University** **2099**
High Reynolds number transonic airfoil testing in shock tubes

Period	Obligations	
04/01/76-12/31/77	FY77: $6,990	TOTAL: $27,182
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cook, W. J.	ARC/Presley, L. L.	41-Aero Engr
	ARC/Chapman, G. T.	

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IOWA (Continued)

NSG 2257 **Iowa State University** **2100**
Low speed, high lift aerodynamics

Period	Obligations	
09/01/77-12/31/78	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
James, W. D	ARC/Olson, L. E. ARC/Corsiglia, V. R.	41-Aero Engr

NSG 3033 **Iowa State University** **2101**
Blade surface boundary layer and wake computation model study

Period	Obligations	
09/01/74-02/28/78	FY77:	TOTAL: $44,493
Prin Invest	*NASA Tech Officer*	*CASE Category*
Serovy, G. K.	LERC/Sockol, P. M.	41-Aero Engr

NSG 5199 **Iowa State University** **2102**
Search for an X-ray identification of a strong X-ray source

Period	Obligations	
08/01/77-07/31/78	FY77: $2,836	TOTAL: $2,836
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lamb, R. C.	GSFC/Jupperiatz, J. E., Jr.	11-Astronomy

NAS 1-13129 **University of Iowa** **2103**
Hawkeye/neutral point Explorer experiments

Period	Obligations	
05/20/74-09/30/78	FY77: $60,000	TOTAL: $1,128,617
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanAllen, J. A. Frank, L. A. Gurnett, D. A.	LARC/Coffee, C. W., Jr.	13-Physics

NAS 2-6553 **University of Iowa** **2104**
Pioneer F/G data analysis-Jovian charged particles experiment

Period	Obligations	
07/21/71-10/01/78	FY77: $105,862	TOTAL: $573,944
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanAllen, J. A.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy

NAS 5-11064 **University of Iowa** **2105**
Low energy electrons and protons experiment for IMP-H & J

Period	Obligations	
05/31/68-12/31/77	FY77: $32,000	TOTAL: $768,656
Prin Invest	*NASA Tech Officer*	*CASE Category*
Frank, L. A.	GSFC/Davis, M. A.	13-Physics

NAS 5-11279 **University of Iowa** **2106**
Solar wind plasma wave experiment for the Helios missions

Period	Obligations	
03/30/70-02/15/79	FY77: $218,500	TOTAL: $1,459,145
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gurnett, D. A. Anderson, R. R.	GSFC/White, C.	11-Astronomy

NAS 5-11431 **University of Iowa** **2107**
Ac electric and magnetic fields experiment

Period	Obligations	
05/21/71-06/30/78	FY77: $40,000	TOTAL: $588,387
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gurnett, D. A.	GSFC/Davis, M. A.	31-Atmos Sci

NAS 5-20093 **University of Iowa** **2108**
Plasma wave experiment for International Sun-Earth Explorer spacecraft A&B

Period	Obligations	
05/20/74-07/30/80	FY77: $142,946	TOTAL: $1,220,423
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gurnett, D. A.	GSFC/Davis, M. A.	13-Physics

NAS 5-20094 **University of Iowa** **2109**
Magnetospheric and Interplanetary plasma for International Sun-Earth Explorer mother & daughter spacecraft

Period	Obligations	
05/20/74-10/31/79	FY77: $92,000	TOTAL: $823,642
Prin Invest	*NASA Tech Officer*	*CASE Category*
Frank, L. A.	GSFC/Davis, M. A.	13-Physics

NAS 5-23726 **University of Iowa** **2110**
Preliminary mission study of the Hawkeye auroral physics Explorer

Period	Obligations	
08/25/76-05/31/77	FY77: $60,009	TOTAL: $94,742
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanAllen, J. A.	GSFC/Suddeth, D. H.	13-Physics

NGL 16-001-002 **University of Iowa** **2111**
Theoretical & experimental studies related to particles & fields associated with major bodies of solar system & with interplanetary space

Period	Obligations	
05/23/62-11/30/79	FY77: $240,000	TOTAL: $4,814,196
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanAllen, J. A.	HQ-ST/Cauffman, D. P. HQ-ST/Schmerling, E. R.	13-Physics

NGL 16-001-043 **University of Iowa** **2112**
Waves in plasmas

Period	Obligations	
03/28/67-11/30/79	FY77: $85,000	TOTAL: $772,986
Prin Invest	*NASA Tech Officer*	*CASE Category*
Montgomery, D. C.	HQ-ST/Cauffman, D. P. HQ-ST/Schmerling, E. R.	13-Physics

NSG 3117 **University of Iowa** **2113**
Boundary layer flow transition and separation in inlets of V/STOL and other high performance propulsion systems

Period	Obligations	
01/01/77-12/31/77	FY77:	TOTAL: $32,748
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chou, D. C.	LERC/Stockman, N. O. LERC/Miller, B. A.	41-Aero Engr

IOWA (Continued)

NSG 7257 — **University of Iowa** — **2114**
Fracture theory for plastics

Period	Obligations	
07/01/76-06/30/77	FY77	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Valanis, K. C	HQ-RR/Randolph, L. P	
Hering, R. G.	JPL/Landel, R.	47-Materials Engr

NSG 9060 — **University of Iowa** — **2115**
Neurocirculatory control mechanisms in humans: Role of cardiopulmonary baroreciptors

Period	Obligations	
08/01/77-07/31/78	FY77: $22,219	TOTAL: $22,219
Prin Invest	*NASA Tech Officer*	*CASE Category*
Abboud, F. M.	JSC/Hull, W. F.	53-Other Medical

KANSAS

NAS 9-14533 — **Kansas State University** — **2116**
Prediction of wheat yield

Period	Obligations	
02/15/75-11/30/77	FY77: $80,000	TOTAL: $259,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Feyerherm, A. M.	JSC/Barnett, T. L.	39-Env Sci, NEC

NAS 9-14899 — **Kansas State University** — **2117**
Estimated winter wheat yield from crop growth predicted by LANDSAT

Period	Obligations	
03/15/76-12/31/77	FY77: $48,000	TOTAL: $92,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kanemasu, E. T.	JSC/Barnett, T. L.	31-Atmos Sci

NCA 2-363702 — **Kansas State University** — **2118**
Experiments on color video compression

Period	Obligations	
07/01/77-06/30/78	FY77: $10,500	TOTAL: $10,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ahmed, N.	ARC/Hofman, L. B.	45-Elec Engr

NGT 17-001-026 — **Kansas State University** — **2119**
Infrared laboratory studies of synthetic planetary atmospheres

Period	Obligations	
03/10/67-11/30/78	FY77:	TOTAL: $252,554
Prin Invest	*NASA Tech Officer*	*CASE Category*
Williams, D.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NSG 5101 — **Kansas State University** — **2120**
Research of solar insolation at the earth surface from cloud cover

Period	Obligations	
03/01/76-08/31/77	FY77:	TOTAL: $24,972
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kanemasu, E. T.	GSFC/Salomonson, V. V. GSFC/Ormsby, J. P.	31 Atmos Sci

NAS 1-12976 — **University of Kansas** — **2121**
Compressible vortex flow characteristics

Period	Obligations	
07/01/74-07/15/77	FY77:	TOTAL: $39,395
Prin Invest	*NASA Tech Officer*	*CASE Category*
Muirhead, V. U.	LARC/Ward, J. F.	41-Aero Engr

NAS 2-9414 — **University of Kansas** — **2122**
Pioneer/Venus probe models instrumented drop tests

Period	Obligations	
11/24/76-01/02/78	FY77: $29,363	TOTAL: $29,363
Prin Invest	*NASA Tech Officer*	*CASE Category*
Muirhead, V. U.	ARC/Seiz, A.	31-Atmos Sci

NAS 5-20943 — **University of Kansas** — **2123**
Analysis of data for ERTS follow-on investigation

Period	Obligations	
03/10/75-12/10/77	FY77: $10,000	TOTAL: $62,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Haralick, R. M.	GSFC/Broderick, J. C.	32-Geological Sci

NAS 5-23777 — **University of Kansas** — **2124**
Microwave remote sensing of snow

Period	Obligations	
11/23/76-11/22/77	FY77: $110,085	TOTAL: $110,085
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ulaby, F. T. Moore, R. K.	GSFC/Rango, A.	45-Elec Engr

NAS 9-14052 — **University of Kansas** — **2125**
Joint soil moisture experiment

Period	Obligations	
04/01/74-03/31/78	FY77: $213,535	TOTAL: $405,178
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ulaby, F. T.	JSC/Demel, K. J.	39-Env Sci, NEC

NAS 9-15003 — **University of Kansas** — **2126**
Radar measurements in agricultural and forestry applications

Period	Obligations	
08/01/76-07/31/77	FY77: $89,980	TOTAL: $134,980
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ulaby, F. T.	JSC/Hatcher, N. M.	32-Geological Sci

NCA 2-365701 **University of Kansas** **2127**
A study of the organization and operation of the Ames data network
Period *Obligations*
12/16/76-01/21/78 FY77: $17,831 TOTAL: $17,831
Prin Invest *NASA Tech Officer* *CASE Category*
Haralick, R. M. ARC/Linebarger, R. N. 21-Mathematics

NCA 2-365702 **University of Kansas** **2128**
Buffeting of space probes
Period *Obligations*
12/16/76-12/31/78 FY77: $22,200 TOTAL: $22,200
Prin Invest *NASA Tech Officer* *CASE Category*
Muirhead, V. U ARC/Seiff, A. 41-Aero Engr

NGL 17-004-024 **University of Kansas** **2129**
Research on the applications of satellite remote sensing
Period *Obligations*
04/06/72-03/31/80 FY77: $99,999 TOTAL: $700,000
Prin Invest *NASA Tech Officer* *CASE Category*
Barr, B. G. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGR 17-002-072 **University of Kansas** **2130**
Advanced technology applications for general aviation aircraft
Period *Obligations*
10/14/69-05/16/78 FY77: $6,354 TOTAL: $956,052
Prin Invest *NASA Tech Officer* *CASE Category*
Kohlman, D. L. LARC/Crane, H. L. 41-Aero Engr

NGR 17-002-106 **University of Kansas** **2131**
Possible contemporaneous climate changes on Earth and Mars determined by Martian statistical geomorphology
Period *Obligations*
08/30/72-05/31/76 FY77: TOTAL: $6,300
Prin Invest *NASA Tech Officer* *CASE Category*
Warnke, D. E HQ-SL/Dwornik, S. E 32-Geological Sci

NGR 17-004-027 **University of Kansas** **2132**
An experimental investigation of lightning damage to selected composite materials and associated protective systems
Period *Obligations*
05/18/72-02/28/78 FY77: $26,683 TOTAL: $102,759
Prin Invest *NASA Tech Officer* *CASE Category*
Lenzen, K. H LARC/Pride, R. A. 41-Aero Engr
Lorenz, S. A. LARC/Davis, J. G., Jr

NSG 1046 **University of Kansas** **2133**
Effects of aeroelasticity on control effectiveness
Period *Obligations*
06/10/74-03/31/79 FY77: $79,917 TOTAL: $139,889
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J LARC/Lamar, J F 41-Aero Engr
Lan, C E LARC/Polhamus, E. C
Mehrotra, S.

NSG 1122 **University of Kansas** **2134**
Measuring mode shapes of vibrating, rotating helicopter blades
Period *Obligations*
11/13/74-05/31/77 FY77: TOTAL: $57,324
Prin Invest *NASA Tech Officer* *CASE Category*
Lenzen, K. H. LARC/Hammond, C. E. 41-Aero Engr
Reese, C. D.

NSG 1139 **University of Kansas** **2135**
Further applications of a wing-jet interaction theory
Period *Obligations*
01/01/75-12/31/77 FY77: $12,000 TOTAL: $67,551
Prin Invest *NASA Tech Officer* *CASE Category*
Lan, C. E. LARC/Campbell, J. F. 41-Aero Engr

NSG 1142 **University of Kansas** **2136**
An analysis of infinite arrays for large microstrip antenna design
Period *Obligations*
06/01/75-12/31/77 FY77 $11,223 TOTAL: $41,438
Prin Invest *NASA Tech Officer* *CASE Category*
Biggs, A. W LARC/Bailey, M. C 45-Elec Engr
Parks, E. G. LARC/Croswell, W F

NSG 1269 **University of Kansas** **2137**
Methods for the prediction of primary creep behavior in metals
Period *Obligations*
01/01/76-03/31/78 FY77 $32,189 TOTAL: $64,294
Prin Invest *NASA Tech Officer* *CASE Category*
Zerwekh, R. P. LARC/Rummler, D R
LARC/Stein, B A 47-Materials Engr

NSG 1281 **University of Kansas** **2138**
Statistical distribution of mechanical properties of graphite-epoxies
Period *Obligations*
07/15/76-07/14/78 FY77: $31,888 TOTAL: $46,976
Prin Invest *NASA Tech Officer* *CASE Category*
Reese, C. D LARC/Howell, W F 47-Materials Engr
LARC/Pride, R A

NSG 1301 **University of Kansas** **2139**
Reduce interior noise in general aviation airplanes
Period *Obligations*
05/01/76-04/30/78 FY77: $70,123 TOTAL: $100,037
Prin Invest *NASA Tech Officer* *CASE Category*
Roskam, J. LARC/Stephens, D. G. 41 Aero Engr
Smith, H W LARC/Mixson, J S
Muirhead, V. U

NSG 1310 **University of Kansas** **2140**
Counting techniques for red tide and coliform organisms
Period *Obligations*
06/07/76-08/21/76 FY77 TOTAL: $5,369
Prin Invest *NASA Tech Officer* *CASE Category*
Lenzen, K H LARC/Pritchard, E B 44-Civil Engr

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NSG 1397 **University of Kansas** **2141**
Remote sensing of oceans

Period	Obligations	
02/15/77-02/14/78	FY77: $25,031	TOTAL: $25,031

Prin Invest	NASA Tech Officer	CASE Category
Moore, R. K.	LARC/Schroeder, L. C	
Fung, A. K.	LARC/Jones, W. L	33-Oceanography

NSG 1421 **University of Kansas** **2142**
A study of low cost reliable actuators for single engine light aircraft

Period	Obligations	
06/15/77-12/14/77	FY77: $24,985	TOTAL: $24,985

Prin Invest	NASA Tech Officer	CASE Category
Roskam, J	LARC/Hewes, D. E.	41-Aero Engr
	LARC/Glover, K. E.	

NSG 1422 **University of Kansas** **2143**
Active and passive systems for water quality monitoring

Period	Obligations	
05/23/77-08/22/77	FY77: $10,984	TOTAL: $10,984

Prin Invest	NASA Tech Officer	CASE Category
Lenzen, K. H.	LARC/Pritchard, F. B.	39-Env Sci, NEC

NSG 2145 **University of Kansas** **2144**
A study of airplane design optimization

Period	Obligations	
05/16/76-05/31/78	FY7 $42,976	TOTAL: $75,566

Prin Invest	NASA Tech Officer	CASE Category
Roskam, J	ARC/Galloway, T. L	41-Aero Engr
	ARC/Sharrer, F. T	

NSG 3087 **University of Kansas** **2145**
Portable solar energy collector test unit

Period	Obligations	
11/15/75-11/14/77	FY77 $21,397	TOTAL: $42,707

Prin Invest	NASA Tech Officer	CASE Category
Lenzen, K. H.	LERC/Forestieri, A. F.	46-Mech Engr
Hotchkiss, G. B.		

NSG 4006 **University of Kansas** **2146**
Structural analyses of ultra-high speed aircraft structural components

Period	Obligations	
05/01/75-01/15/78	FY77 $4,997	TOTAL: $40,861

Prin Invest	NASA Tech Officer	CASE Category
Lenzen, K. H.	DFRC/Fields, R. A.	41-Aero Engr
	DFRC/Jenkins, J. M.	

NSG 4007 **University of Kansas** **2147**
Modification and testing of a remotely augmented vehicle system

Period	Obligations	
07/01/75-06/30/78	FY77 $21,853	TOTAL: $63,339

Prin Invest	NASA Tech Officer	CASE Category
Grose, D. L.	DFRC/Deets, D. A.	41-Aero Engr

NSG 4008 **University of Kansas** **2148**
Analysis of structural components for ultra high speed aircraft

Period	Obligations	
05/01/76-04/30/78	FY77:	TOTAL: $40,416

Prin Invest	NASA Tech Officer	CASE Category
Lenzen, K. H.	DFRC/Jenkins, J. M.	41-Aero Engr

NSG 4009 **University of Kansas** **2149**
An investigation of drag reduction for tractor trailer vehicles

Period	Obligations	
07/01/76-11/01/77	FY77.	TOTAL: $9,052

Prin Invest	NASA Tech Officer	CASE Category
Muirhead, V. U.	DFRC/Saltzman, E. J.	49-Engr, NEC

NSG 4012 **University of Kansas** **2150**
Interfacing between ground computer and fly-by wire control system

Period	Obligations	
07/15/77-07/14/78	FY77 $18,608	TOTAL: $18,608

Prin Invest	NASA Tech Officer	CASE Category
Talley, H. E.	DFRC/Deets, D. A.	41-Aero Engr
Wolf, J.		

NSG 5086 **University of Kansas** **2151**
Internal structure of thunderstorms

Period	Obligations	
12/01/75-11/30/76	FY77	TOTAL: $20,376

Prin Invest	NASA Tech Officer	CASE Category
Eagleman, J. R.	GSFC/Wexler, R.	31-Atmos Sci

NSG 7351 **University of Kansas** **2152**
Structural study of the Kentland, Indiana impact structure

Period	Obligations	
05/17/77-05/15/78	FY77 $13,169	TOTAL: $13,169

Prin Invest	NASA Tech Officer	CASE Category
Vanschmus, W. R.	HQ-SI/Goldstein, B. E.	
	HQ-SI/Quaide, W. L.	32-Geological Sci

NSG 8046 **University of Kansas** **2153**
A data base system to support image algorithm evaluation

Period	Obligations	
11/15/76-12/31/77	FY77 $36,174	TOTAL: $36,174

Prin Invest	NASA Tech Officer	CASE Category
Lien, Y. E.	MSFC/Ravroe, R. G.	32-Geological Sci
	MSFC/Roman, H. A.	

NGR 17-003-021 **Wichita State University** **2154**
Experimental studies of flow separation and stalling on two-dimensional airfoils at low speeds Phase I

Period	Obligations	
12/01/73-10/31/77	FY77 $35,305	TOTAL: $122,205

Prin Invest	NASA Tech Officer	CASE Category
Wentz, W. H., Jr.	LARC/Noonan, K. W.	41-Aero Engr
Seetharam, H. C.	LARC/McGhee, R. J.	

KANSAS (Continued)

NSG 1165 — **Wichita State University** — **2155**
Computer and wind tunnel development of flaps and control surfaces for advanced technology general aviation airfoils

Period	Obligations	
06/01/75-10/31/77	FY77: $86,780	TOTAL: $170,504
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wentz, W. H., Jr.	LARC/McGhee, R. J.	41-Aero Engr
Seetharam, H. C.	LARC/Crane, H. L.	

NSG 2134 — **Wichita State University** — **2156**
Wind tunnel investigations of computer designed airfoil section modifications

Period	Obligations	
02/01/76-04/30/78	FY77: $24,228	TOTAL: $34,391
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wentz, W. H., Jr.	ARC/Hicks, R. M	41-Aero Engr
Seethavam, H. C.		

KENTUCKY

NSG 801 — **Kentucky State University** — **2157**
Zoological effects of variations in atmospheric oxygen levels

Period	Obligations	
02/27/74-04/29/78	FY77: $39,812	TOTAL: $138,752
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kloek, G.	KSC/Morrison, J. D.	59-Life Sci, NEC

NAS 2-8883 — **University of Kentucky** — **2158**
Design, fabricate, test and install oscillating platform

Period	Obligations	
06/02/75-05/01/78	FY77: $30,775	TOTAL: $119,398
Prin Invest	*NASA Tech Officer*	*CASE Category*
Knapp, C. E.	ARC/McCutcheon, E. P	46-Mech Engr

NAS 3-20397 — **University of Kentucky** — **2159**
A conceptual design for SpaceLab pool boiling experiments

Period	Obligations	
03/01/77-12/01/77	FY77: $15,246	TOTAL: $15,246
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lienhard, J. H.	LERC/Cochran, T. H	13-Physics

NAS 8-31006 — **University of Kentucky** — **2160**
Remote sensing of effects of land use practices on water quality

Period	Obligations	
10/11/74-05/31/77	FY77:	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zaneveld, J. R.	MSFC/Paludan, C. T.	39-Env Sci, NEC
Pak, H.		

NAS 9-14392 — **University of Kentucky** — **2161**
Limb volume measuring system studies

Period	Obligations	
10/01/74-10/31/77	FY77: $19,785	TOTAL: $64,621
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lafferty, J. F.	JSC/Jackson, M. M.	46-Mech Engr

NASW 3039 — **University of Kentucky** — **2162**
Operation of a state technical application program

Period	Obligations	
02/01/77-01/31/78	FY77: $175,000	TOTAL: $175,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Dolby, W	99-Multi-Disc

NCA 2-370701 — **University of Kentucky** — **2163**
Mass spectrometry and artificial intelligence

Period	Obligations	
06/26/77-09/01/77	FY77: $4,844	TOTAL: $4,844
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kiser, R. W.	ARC/Lawless, J. G.	12-Chemistry

NGR 18-001-058 — **University of Kentucky** — **2164**
Lunar sample analysis

Period	Obligations	
01/12/71-07/31/77	FY77: $7,000	TOTAL: $191,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ehmann, W. D.	JSC/Harris, J. W.	13-Physics

NGR 18-001-083 — **University of Kentucky** — **2165**
Effects of elevated gravity upon gas flames

Period	Obligations	
08/01/73-09/30/76	FY77:	TOTAL: $19,989
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hsu, N. N.	LERC/Haggard, J. B.	13 Physics
Eichhorn, R.		

NSG 1273 — **University of Kentucky** — **2166**
Development of a global pollution model for Ch4 and CO

Period	Obligations	
02/15/76-08/14/77	FY77	TOTAL: $8,279
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peters, L. K.	LARC/Reichle, H. G., Jr.	31-Atmos Sci

NSG 1424 — **University of Kentucky** — **2167**
A model for methane and carbon monoxide incorporating a time-varying wind field and tropopause height

Period	Obligations	
07/01/77-06/30/78	FY77: $23,547	TOTAL: $23,547
Prin Invest	*NASA Tech Officer*	*CASE Category*
Peters, L. K.	LARC/Reichle, H. G., Jr.	31-Atmos Sci
	LARC/Beck, S. M.	

NSG 2187 — **University of Kentucky** — **2168**
Effects of hypergravity on bone growth development

Period	Obligations	
10/01/76-10/01/77	FY77: $12,167	TOTAL: $12,167
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, S. D.	ARC/Sharp, J.	51-Biology

KENTUCKY (Continued)

NSG 3013 — **University of Kentucky** — **2169**
Fracture toughness testing of beryllium

Period	Obligations	
07/01/74-12/30/77	FY77.	TOTAL. $20,727
Prin Invest	*NASA Tech Officer*	*CASE Category*
Conrad, H	LERC/Brown, W F., Jr	
Sargent, G A	LERC/Jones, M H.	47-Materials Engr

NSG 3114 — **University of Kentucky** — **2170**
Study effects of buoyancy on flame spreading across beds of solid fuel

Period	Obligations	
07/01/76-09/30/78	FY77	TOTAL $29,783
Prin Invest	*NASA Tech Officer*	*CASE Category*
Altenkirch, R A	LERC/Haggard, J B	46-Mech Engr
Eichhorn, R		

NSG 3125 — **University of Kentucky** — **2171**
A study of the effect of minor reactive metal additions on the fracture of iron-12-percent nickel alloy

Period	Obligations	
11/01/76-11/30/77	FY77 $25,990	TOTAL $24,990
Prin Invest	*NASA Tech Officer*	*CASE Category*
Conrad, H	LERC/Stephens, J R	47-Materials Engr
Sargent, G A		

NAS 5-23664 — **University of Louisville** — **2172**
Provide an independent performance prediction of the Tiros-N data collection system

Period	Obligations	
08/02/76-08/02/77	FY77	TOTAL $20,670
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shelton, D	GSFC Burdett, G L	42-Astro Engr

NAS 8-31233 — **University of Louisville** — **2173**
Turbopump technology improvements via transient rotordynamics analysis

Period	Obligations	
12/14/74-02/01/78	FY77 $36,000	TOTAL $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Childs, D W	MSFC Gross, L A	42-Astro Engr
	MSFC Pitsenberger, E D	

NAS 9-14632 — **University of Louisville** — **2174**
ASTP Cosmos fundulus embryo development experiment

Period	Obligations	
04/14/75-02/15/78	FY77	TOTAL $133,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keefe, J R	JSC Hoffman, R A	51-Biology

NAS 9-15213 — **University of Louisville** — **2175**
Baseline study on the embryonic development of the mouse cranial sensory systems

Period	Obligations	
12/01/76-11/30/77	FY77 $40,900	TOTAL $40,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keefe, J R	JSC Hoffman, R A	59-Life Sci, NEC
Fuller, P M		

NSG 1220 — **University of Louisville** — **2176**
Effects of overt emotionality on reactions to aircraft noise

Period	Obligations	
08/01/75-12/31/77	FY77 $49,881	TOTAL $112,757
Prin Invest	*NASA Tech Officer*	*CASE Category*
Loeb, M.	LARC/Mayes, W. H.	69-Psych, NEC
VanDerHei, S L	LARC/Cawthorn, J M	

NSG 2067 — **University of Louisville** — **2177**
The efferent component of the vestibular nerve in the bullfrog

Period	Obligations	
02/15/75-02/28/77	FY77	TOTAL $11,432
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fuller, P M	ARC Mehler, W R	51-Biology
Prior, D J		

LOUISIANA

NGR 19-011-012 — **Grambling State University** — **2178**
Theoretical investigation of isotopic anomaly of xenon in carbonaceous chondrites

Period	Obligations	
04/24/72-08/31/77	FY77	TOTAL $42,320
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sabu, D D	HQ-P Pohly, J G	43-Chem Engr

NGR 19-011-016 — **Grambling State University** — **2179**
Distribution of extranuclear electrons in semimetallic environments by nuclear quadrupole resonance techniques

Period	Obligations	
11/14/72-06/30/77	FY77	TOTAL $68,364
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murty, V N	MSFC Kroes, R L	13-Physics
	MSFC Kent, M L	

NSG 8034 — **Grambling State University** — **2180**
Study of ultra low frequency oscillations at the synchronous orbit using data from ATS-6, SMS-1 and SMS-2

Period	Obligations	
12/01/75-06/30/77	FY77	TOTAL $70,80
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cummings, W D	MSFC Chappell, C R	13-Physics

NAS 8-30380 **Louisiana State University - Baton Rouge** **2181**
Development of a three-dimensional time-dependent flow field model

Period	Obligations	
01/14/74-03/08/76	FY77:	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Farmer, R. C	MSFC/Hamby, H. G.	13-Physics
Waldrop, W. R.	MSFC/Wilson, H. B.	

NAS13-38 **Louisiana State University - Baton Rouge** **2182**
Study of feeding value in water hyacinths

Period	Obligations	
06/22/76-07/25/77	FY77	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wolverton, B. C.	JSC/Rusoff, L. L.	59-Life Sci, NEC

NGL 19-001-105 **Louisiana State University - Baton Rouge** **2183**
Interpretation of remote sensing data in the Bayou la Fourche region of South Louisiana

Period	Obligations	
06/06/72-05/31/79	FY77:	TOTAL: $425,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Whitehurst, C. A.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NAS 9-9317 **Louisiana State University - Shreveport** **2184**
Study of modulatory effects of solar wind in galactic cosmic rays

Period	Obligations	
04/07/69-06/30/78	FY77	TOTAL: $30,160
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moss, T. A.	JSC/Giuli, R. T.	11-Astronomy

NSG 7357 **Northeast Louisiana University** **2185**
Mercury geologic mapping-Kuiper quadrangle

Period	Obligations	
06/01/77-05/31/78	FY77: $7,829	TOTAL: $7,829
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dehon, R. A.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci

NGR 19-005-003 **Southern University - Baton Rouge** **2186**
Experimental and theoretical study on nonequilibrium and unsteady phenomena in supersonic gas dynamics

Period	Obligations	
01/20/71-09/01/76	FY77:	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liu, K. H. Butler, J. L.	MSFC/Kent, M. I.	19 Phys Sci, NEC

NGR 19-005-006 **Southern University - Baton Rouge** **2187**
Research in the many-particle theory of nuclear systems with application to neutron star matter

Period	Obligations	
10/17/72-01/31/78	FY77: $17,981	TOTAL: $88,956
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yang, C. H.	JPL/Estabrook, F. B. JPL/Zmuidzinas, J. S.	11-Astronomy

NGT 19-005-750 **Southern University - Baton Rouge** **2188**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/75-05/30/77	FY77:	TOTAL: $28,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burrell, M. Q.	HQ-P/Pohly, J. G. HQ-U/Jenkins, H. G.	49-Engr, NEC

NSG 2041 **Southern University - Baton Rouge** **2189**
Analytical model for the dynamic stress and deformation studies in the left ventricle

Period	Obligations	
08/19/74-08/31/78	FY77: $25,000	TOTAL: $74,301
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ray, G.	ARC/Sandler, H. ARC/Sadoff, M.	59-Life Sci, NEC

NSG 8025 **Southern University - Baton Rouge** **2190**
Inhibitor analysis for a solar heating and cooling system

Period	Obligations	
01/02/75-04/15/78	FY77: $24,500	TOTAL: $71,572
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tabony, J.	MSFC/Williamson, J. G. MSFC/Kent, M. I.	46-Mech Engr

NSG 8028 **Southern University - Baton Rouge** **2191**
Theoretical model for a single particle echo signature using light scattering theory

Period	Obligations	
10/15/75-11/14/77	FY77	TOTAL: $20,393
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, J. A.	MSFC/Trenkle, J. J. MSFC/Kent, M. I.	45-Elec Engr

NSG 8029 **Southern University - Baton Rouge** **2192**
Determination of particle size using measurements of scatter

Period	Obligations	
10/15/75-10/14/77	FY77:	TOTAL: $39,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fernald, F. G.	MSFC/Trenkle, J. J. MSFC/Kent, M. I.	46-Mech Engr

NSG 8053 **Southern University - Baton Rouge** **2193**
Development of a fault tolerant microprocessor based computer systems for space flight

Period	Obligations	
09/01/77-08/31/78	FY77: $26,709	TOTAL: $26,709
Prin Invest	*NASA Tech Officer*	*CASE Category*
Montgomery, V. I.	MSFC/White, J. B. MSFC/Kent, M. I.	45-Elec Engr

NSG 9030 **Southern University - Baton Rouge** **2194**
State vector update filter for autoland portion of the shuttle landing

Period	Obligations	
09/01/75-10/31/77	FY77	TOTAL: $44,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Grewal, G. S.	JSC/Echelkamp, R. E.	45-Elec Engr

C-2

LOUISIANA (Continued)

NCA 2-800701 **Tulane University** **2195**
Investigation of pseudo-allelism as an adaptive mechanism in the evolution of thermophilic bacteria

Period	Obligations	
10/01/76-09/30/77	FY77: $2,500	TOTAL: $2,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Johnson, E. J.	ARC/MacElroy, R. D	51-Biology

NSG 2139 **Tulane University** **2196**
Localization and ultrastructural histochemical characterization of the central emetic apparatus related to motion sickness and emetic drugs in the squirrel monkey and dog

Period	Obligations	
03/01/76-02/28/78	FY77 $30,000	TOTAL: $69,902
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brizzee, K. R. Yates, R. D.	ARC/Mehler, W. R.	53-Other Medical

NSG 3049 **University of Southwestern Louisiana** **2197**
Population inversion in charge exchange collisions

Period	Obligations	
03/01/75-02/28/77	FY77:	TOTAL: $11,454
Prin Invest	*NASA Tech Officer*	*CASE Category*
Matese, J. J	LERC/Chubb, D. L. LERC/Michels, C. J.	13-Physics

NGR 19-007-004 **Xavier University - Louisiana** **2198**
The correlation of the 24 hour pattern of rat plasma and adrenal corticosterone with the diurnal variations of certain tissue constituents involved in carbohydrate metabolism

Period	Obligations	
05/07/73-06/30/78	FY77 $15,809	TOTAL: $150,247
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ashman, P. U	ARC/Winget, C. M. ARC/Danellis, J. V	51-Biology

NSG 1361 **Xavier University - Louisiana** **2199**
Calculation of total cross sections for charge exchange in molecular collisions

Period	Obligations	
01/01/77-12/31/78	FY77: $35,012	TOTAL: $35,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ioup, J. W	LARC/Wood, G. M LARC/Smith, A	13-Physics

NSG 8050 **Xavier University - Louisiana** **2200**
Solar radiation measurement project

Period	Obligations	
06/02/77-12/01/77	FY77: $21,560	TOTAL: $21,560
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ioup, J. W	MSFC/Espy, P. N MSFC/Keat, M. L.	39-Env Sci, NEC

MARYLAND

NGR 21-027-001 **Bowie State College** **2201**
Research in cosmic ray physics

Period	Obligations	
09/01/69-04/30/78	FY77: $14,070	TOTAL: $110,218
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tornabene, H. S.	GSFC/Boldt, E. A.	11-Astronomy

NGR 21-027-004 **Bowie State College** **2202**
Research in numerical integration

Period	Obligations	
05/25/71-07/31/78	FY77: $15,850	TOTAL: $77,835
Prin Invest	*NASA Tech Officer*	*CASE Category*
Srivastava, S	GSFC/Lefferts, E. J	21-Mathematics

NGR 21-027-010 **Bowie State College** **2203**
Holographic gratings for spectrographic applications study of aberrations

Period	Obligations	
05/14/73-06/30/78	FY77 $1,498	TOTAL: $62,879
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bhatia, M. S.	GSFC/Caruso, A. J GSFC/Osantowski, J. F.	13-Physics

NGT 21-027-012 **Bowie State College** **2204**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/74-05/31/78	FY77 $30,772	TOTAL: $118,464
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kirksey, C. H.	HQ-P/Pohly, J. G GSFC/Mundy, J. R	99-Multi-Discip

NSG 5009 **Bowie State College** **2205**
Characterization of the physico-chemical properties of polymeric materials for aerospace flights

Period	Obligations	
07/01/74-11/30/78	FY77 $24,343	TOTAL: $84,483
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rock, M	GSFC/Gross, F. C GSFC/Colony, J. A	12-Chemistry

NSG 5051 **Coppin State College** **2206**
Research on the failure mechanism and other factors leading to reduction of cycle life in aerospace nickel-cadmium cells

Period	Obligations	
05/01/75-04/30/78	FY77 $39,840	TOTAL: $85,583
Prin Invest	*NASA Tech Officer*	*CASE Category*
McDermott, P. P.	GSFC/Ford, F.	12-Chemistry

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NGT 21-123-001 **Goucher College** **2207**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/74-05/31/77	FY77:	TOTAL: $21,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Billet, J.	HQ-P/Pohly, J. G.	99-Multi-Discip
	HQ-U/Jenkins, H. G.	

NAS 2-9300 **Johns Hopkins University** **2208**
Study of predictive ecological models useful for the management and conservation of Bearing Sea mammals

Period	Obligations	
06/28/76-12/31/77	FY77:	TOTAL: $89,833
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ray, G. C.	ARC/Sebesta, P. D.	59-Life Sci, NEC
Wartzok, D.	ARC/Billingham, J.	
Besta, S. E.		

NAS 5-11415 **Johns Hopkins University** **2209**
Atmosphere Explorer photoelectron and energetic particle experiment

Period	Obligations	
08/15/74-11/30/77	FY77: $70,000	TOTAL: $1,129,327
Prin Invest	*NASA Tech Officer*	*CASE Category*
Doering, J. P.	GSFC/Gustafson, C	31-Atmos Sci

NAS 5-23316 **Johns Hopkins University** **2210**
Design study of ultraviolet properties for large space telescope

Period	Obligations	
09/24/73-06/30/78	FY77: $20,000	TOTAL: $148,607
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fastie, W. G.	GSFC/Boggess, A.	11-Astronomy

NAS 5-23695 **Johns Hopkins University** **2211**
Study for adapting two existing rocket telescope systems for spacelab

Period	Obligations	
08/11/76-03/01/77	FY77:	TOTAL: $37,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fastie, W. G.	GSFC/Bensimon, M.	11-Astronomy
Moos, H. W.		

NAS 5-23732 **Johns Hopkins University** **2212**
Development of a command system for a fully implantable human tissue stimulator

Period	Obligations	
10/26/76-12/26/77	FY77 $175,000	TOTAL: $175,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Long, D.	GSFC/Friedman, D. S.	53-Other Medical
Fishell, R. F.		

NAS 5-24236 **Johns Hopkins University** **2213**
Study of slit jaw camera guidance system for shuttle telescopes

Period	Obligations	
07/19/77-07/18/78	FY77 $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fastie, W. G.	GSFC/Wilson, L.	11-Astronomy
Davidsen, A. F.		

NAS 6-2706 **Johns Hopkins University** **2214**
Services and materials necessary to perform theoretical studies in ocean dynamics

Period	Obligations	
01/16/76-02/14/78	FY77: $62,125	TOTAL: $148,101
Prin Invest	*NASA Tech Officer*	*CASE Category*
Phillips, O. M.	WFC/Stanley, H. R.	33-Oceanography
	WFC/Huang, N. E.	

NCA 2-355701 **Johns Hopkins University** **2215**
Hormonal influence on orthostatic tolerance

Period	Obligations	
07/15/77-07/14/78	FY77: $8,800	TOTAL: $8,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gann, D. S.	ARC/Danellis, J. V.	53-Other Medical

NGR 21-001-001 **Johns Hopkins University** **2216**
Rocket and laboratory experiments and analysis on ultraviolet spectra of upper atmosphere

Period	Obligations	
08/01/61-02/28/78	FY77 $280,000	TOTAL: $4,263,863
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fastie, W. G.	GSFC/Bissell, E. E.	11-Astronomy

NGR 21-001-111 **Johns Hopkins University** **2217**
Small group performance & effects of contingency management in a programmed environment

Period	Obligations	
03/31/72-11/30/77	FY77 $90,000	TOTAL: $735,255
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brady, J. V.	ARC/Patton, R. M.	62-Social Aspects
Emurian, H. H.		

NSG 1265 **Johns Hopkins University** **2218**
Investigation of transient fault phenomena in digital systems

Period	Obligations	
12/01/75-06/30/77	FY77:	TOTAL: $49,050
Prin Invest	*NASA Tech Officer*	*CASE Category*
Masson, G. M.	LARC/Bavuso, S. J.	45-Elec Engr

NSG 1442 **Johns Hopkins University** **2219**
Aspects of some transient faults in computer based systems

Period	Obligations	
09/15/77-09/14/78	FY77: $47,948	TOTAL: $47,948
Prin Invest	*NASA Tech Officer*	*CASE Category*
Masson, G. M.	LARC/Bavuso, S. J.	45-Elec Engr
	LARC/Lupton, A. O.	

NSG 5065 **Johns Hopkins University** **2220**
Photometric measurements of cometary gas production rates

Period	Obligations	
05/01/75-07/31/76	FY77	TOTAL: $9,420
Prin Invest	*NASA Tech Officer*	*CASE Category*
Feldman, P. D.	GSFC/Maran, S. P.	11-Astronomy
	GSFC/Hobbs, R. W.	

NSG 5067 **Johns Hopkins University** **2221**
Investigation of stellar chromospheres and the interstellar medium with the Copernicus satellite
Period *Obligations*
07/01/75-10/31/76 FY77: TOTAL $15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Moos, H. W. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5078 **Johns Hopkins University** **2222**
Investigation of stellar coronae with the Copernicus satellite
Period *Obligations*
09/01/75-08/31/76 FY77: TOTAL. $10,000
Prin Invest *NASA Tech Officer* *CASE Category*
Henry, R. C GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5090 **Johns Hopkins University** **2223**
Research in earth sciences
Period *Obligations*
01/01/76-03/31/78 FY77. $34,577 TOTAL. $107,452
Prin Invest *NASA Tech Officer* *CASE Category*
Marsh, B. D GSFC/Marsh, J. G. 32-Geological Sci
GSFC/Mead, G. D.

NSG 5119 **Johns Hopkins University** **2224**
Local interstellar hydrogen observations and search for chromospheres and corona in A & F stars
Period *Obligations*
07/01/76-06/30/77 FY77: TOTAL $15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Henry, R. C. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5161 **Johns Hopkins University** **2225**
Laboratory modelling of oceanic phenomena
Period *Obligations*
02/14/77-02/13/78 FY77: $24,862 TOTAL: $24,862
Prin Invest *NASA Tech Officer* *CASE Category*
Phillips, O. M GSFC/Mueller, J. L 33-Oceanography

NSG 5184 **Johns Hopkins University** **2226**
Research in stellar chromospheres with the Copernicus satellite
Period *Obligations*
07/01/77-06/30/78 FY77 $11,000 TOTAL $11,000
Prin Invest *NASA Tech Officer* *CASE Category*
Moos, H. W GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 5210 **Johns Hopkins University** **2227**
Laser ranging based on maximum likelihood detection
Period *Obligations*
10/01/77-11/15/77 FY77 $6,000 TOTAL. $6,000
Prin Invest *NASA Tech Officer* *CASE Category*
Davidson, F GSFC/Abshire, J. B 45-Elec Engr
GSFC/Fitzmaurice, M. W.

NSG 7055 **Johns Hopkins University** **2228**
Satellite data analysis
Period *Obligations*
01/01/74-03/30/78 FY77: $70,000 TOTAL. $234,000
Prin Invest *NASA Tech Officer* *CASE Category*
Krimigis, S. M. HQ-ST/Taylor, W. W 13-Physics
HQ-ST/Schmerling, E. R.

NAS 5-23558 **Morgan State University** **2229**
The investigation, identification, analysis and interpretation of new possibilities in transfer technology
Period *Obligations*
06/01/76-06/01/78 FY77. $17,454 TOTAL. $38,590
Prin Invest *NASA Tech Officer* *CASE Category*
Collagan, R. B. GSFC/Friedman, D. S 49-Engr, NEC

NGT 21-025-006 **Morgan State University** **2230**
Summer faculty fellowship program
Period *Obligations*
04/16/71-03/31/78 FY77: $43,695 TOTAL: $248,111
Prin Invest *NASA Tech Officer* *CASE Category*
Proctor, N. K. HQ-P/Pohly, J. G 19-Phys Sci, NEC
GSFC/Mundy, J. R.

NSG 5074 **Morgan State University** **2231**
Research calibration of photographic and spectrographic films
Period *Obligations*
10/01/75-03/31/78 FY77 $2,345 TOTAL. $26,595
Prin Invest *NASA Tech Officer* *CASE Category*
Hammond, E. C., Jr. GSFC/Baker, G. R. 11-Astronomy
GSFC/Stober, A. K

NGR 21-002-010 **University of Maryland - Baltimore** **2232**
Theoretical & experimental research on gravitational radiation
Period *Obligations*
06/12/63-07/14/77 FY77: TOTAL: $965,887
Prin Invest *NASA Tech Officer* *CASE Category*
Misner, C. W HQ-SA/Roman, N. G 11-Astronomy
HQ-SA/Rosendhal, J. D

NSG 2098 **University of Maryland - Baltimore** **2233**
Alterations in the mammalian vestibular system associated with changes in gravitational field
Period *Obligations*
08/01/75-12/31/77 FY77: TOTAL: $66,713
Prin Invest *NASA Tech Officer* *CASE Category*
Grenell, R. G. ARC/Sharp, J. C 53-Other Medical

NAS 5-11063 **University of Maryland - College Park** **2234**
Experiment to analyze ions and electrons for IMP-H & J
Period *Obligations*
06/11/68-10/31/79 FY77: $1 00 TOTAL. $1,877,392
Prin Invest *NASA Tech Officer* *CASE Category*
Gloeckler, G GSFC/Davis, M. A 13-Physics

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NAS 5-20062 **University of Maryland - College Park** **2235**
Low energy charged particles experiment for International Sun-Earth Explorer mother and heliocentric spacecraft

Period	Obligations	
05/02/74-07/30/80	FY77 $354,190	TOTAL $963,861
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gloeckler, G.	GSFC/Davis, M. A.	13-Physics

NAS 5-20834 **University of Maryland - College Park** **2236**
Investigation of the origin of organic molecules in the atmosphere of Jupiter

Period	Obligations	
01/09/75-09/30/77	FY77: $3,000	TOTAL: $21,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ponnamperuma, C. A.	GSFC/Stief, L. J. GSFC/Donn, B. D.	12-Chemistry

NAS 5-22537 **University of Maryland - College Park** **2237**
Lidar design requirements study

Period	Obligations	
08/08/75-10/31/77	FY77: $20,000	TOTAL: $39,686
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilkerson, T. W. McIlrath, T. J.	GSFC/Aikin, A. C. GSFC/Spencer, N. W.	31-Atmos Sci

NAS 5-22835 **University of Maryland - College Park** **2238**
Workshop meetings for the electrodynamic Explorer preliminary science mission study

Period	Obligations	
10/16/75-04/30/77	FY77: $8,985	TOTAL: $49,809
Prin Invest	*NASA Tech Officer*	*CASE Category*
Messenger, C. J.	GSFC/Findlay, J. A.	31-Atmos Sci

NAS 5-22878 **University of Maryland - College Park** **2239**
Study of analysis and modeling of distributed computing

Period	Obligations	
01/09/76-03/16/77	FY77: $6,223	TOTAL: $61,296
Prin Invest	*NASA Tech Officer*	*CASE Category*
Agrawala, A. K.	GSFC/Barsky, J. GSFC/Larsen, R. L.	22-Computer Sci

NAS 5-23237 **University of Maryland - College Park** **2240**
Feasibility study for infrared interferometer, spectrometer, & radiometer for Mariner/Jupiter 1977 launch

Period	Obligations	
05/09/73-10/31/81	FY77 $11,000	TOTAL: $46,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ponnamperuma, C. A.	GSFC/Conrath, B. J. GSFC/Hanel, R. A.	13-Physics

NAS 5-23457 **University of Maryland - College Park** **2241**
Study of application of a field neutron generator

Period	Obligations	
04/06/76-09/30/78	FY77: $5,000	TOTAL: $16,152
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sommer, S. E.	GSFC/Trombka, J. I.	39-Env Sci, NEC

NAS 5-24092 **University of Maryland - College Park** **2242**
Study of several problems relevant to the design and performance of distributed computing networks

Period	Obligations	
03/16/77-03/16/78	FY77: $62,137	TOTAL: $62,137
Prin Invest	*NASA Tech Officer*	*CASE Category*
Agrawala, A. K.	GSFC/Barsky, J. GSFC/Larsen, R. L.	22-Computer Sci

NAS 5-24130 **University of Maryland - College Park** **2243**
Laboratory study of resonance fluorescence in atmospheric gases

Period	Obligations	
04/07/77-03/01/78	FY77: $95,000	TOTAL: $95,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McIlrath, T. J. Wilkerson, T. D. McGee, T. J.	GSFC/Aikin, A. C.	31-Atmos Sci

NAS 5-24305 **University of Maryland - College Park** **2244**
Intensified charge-coupled device imager study

Period	Obligations	
09/15/77-02/14/78	FY77: $39,410	TOTAL: $39,410
Prin Invest	*NASA Tech Officer*	*CASE Category*
Currie, D. G.	GSFC/Kelsall, T.	12-Chemistry

NAS 8-32148 **University of Maryland - College Park** **2245**
A study to determine the aquatic biological effects on the solid rocket booster

Period	Obligations	
08/10/76-11/15/77	FY77	TOTAL: $43,041
Prin Invest	*NASA Tech Officer*	*CASE Category*
Colwell, R. R.	MSFC/Scott, F. F. MSFC/Miller, T. Y.	51-Biology

NCA 2-420703 **University of Maryland - College Park** **2246**
Biochemical characterization of a microorganism from a high PH environment

Period	Obligations	
07/01/77-12/31/77	FY77: $2,000	TOTAL: $2,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ponnamperuma, C. A.	ARC/Deal, P.	51-Biology

NCA 5-13 **University of Maryland - College Park** **2247**
Study of digital image processing of astronomical scenes

Period	Obligations	
05/17/76-05/15/77	FY77	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rosenfeld, A.	GSFC/Klinglesmith, D. A.	31-Atmos Sci

NCA 5-17 **University of Maryland - College Park** **2248**
Analysis of imagery and calibration cameras

Period	Obligations	
11/27/76-12/27/76	FY77: $1,400	TOTAL: $1,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rosenfeld, A.	GSFC/Klingelsmith, D. A.	11-Astronomy

NCA 5-18 **University of Maryland - College Park** **2249**
Career development research activities' Image intensifier research

Period	Obligations	
08/19/76-09/01/77	FY77: $2,000	TOTAL. $2,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kassander, R. A	GSFC/Dunkelman, L.	11-Astronomy

NCA 5-20 **University of Maryland - College Park** **2250**
Study of digital image processing of astronomical scenes

Period	Obligations	
05/16/77-05/15/78	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rosenfeld, A.	GSFC/Fischel, D.	11-Astronomy
	GSFC/Klinglesmith, D. A	

NCA 5-22 **University of Maryland - College Park** **2251**
Analysis of orbital and celestial environment display information

Period	Obligations	
07/01/77-12/31/77	FY77: $10,000	TOTAL $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rosenfeld, A.	GSFC/Slade, W.	11-Astronomy
	GSFC/Hennessy, J.	

NCA 5-65 **University of Maryland - College Park** **2252**
Study of atomic properties of astrophysic ions and atoms

Period	Obligations	
07/01/76-10/01/77	FY77: $7,000	TOTAL. $7,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Martin, F. W	GSFC/Kastner, S. O.	13-Physics
Koopman, D.		
McIlrath, T. J.		

NGL 21-002-005 **University of Maryland - College Park** **2253**
Theoretical research on dynamics of astrophysical plasmas including studies of structure of plasma shock waves in solar corona and their possible radio emission

Period	Obligations	
02/01/62-06/30/79	FY77: $65,000	TOTAL. $915,493
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wu, C. S.	HQ-ST/Cauffman, D P.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

NGL 21-002-033 **University of Maryland - College Park** **2254**
Theoretical and experimental studies in space sciences, including consideration of rocket probe and satellites techniques

Period	Obligations	
06/02/64-07/31/80	FY77. $209,735	TOTAL $3,073,248
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, E P.	GSFC/Bauer, S J.	31-Atmos Sci
Kerr, F. J.		

NGR 21-002-002 **University of Maryland - College Park** **2255**
Theoretical studies in atmospheric and space physics

Period	Obligations	
02/01/60-11/30/77	FY77:	TOTAL: $687,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Opik, E. J.	HQ-SL/Donn, B D.	11-Astronomy

NGR 21-002-066 **University of Maryland - College Park** **2256**
A study of primary cosmic ray electrons, utilizing balloon-borne experiments

Period	Obligations	
11/19/65-05/31/78	FY77: $60,000	TOTAL: $795,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Earl, J. A.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A G.	

NGR 21-002-073 **University of Maryland - College Park** **2257**
Experimental and theoretical investigation of plasma radiation

Period	Obligations	
04/26/66-02/28/78	FY77 $59,169	TOTAL. $756,174
Prin Invest	*NASA Tech Officer*	*CASE Category*
Griem, H R.	HQ-SA/Rosendhal, J. D.	11-Astronomy
	HQ-SA/Roman, N G.	

NGR 21-002-096 **University of Maryland - College Park** **2258**
Research in atmospheric physics

Period	Obligations	
06/21/66-01/31/78	FY77 $116,228	TOTAL $747,642
Prin Invest	*NASA Tech Officer*	*CASE Category*
Matthews, D. L.	GSFC/Hartle, R. E.	31-Atmos Sci
	GSFC/Gagnon, B. D	

NGR 21-002-199 **University of Maryland - College Park** **2259**
Research in solar radio astronomy at short wavelengths

Period	Obligations	
04/11/69-09/30/77	FY77 $60,000	TOTAL. $283,656
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kundu, M. R	HQ-ST/Timothy, A. F	13-Physics

NGR 21-002-224 **University of Maryland - College Park** **2260**
Research on the measurement of the charge and isotopic composition on the primary cosmic rays

Period	Obligations	
07/31/69-02/28/79	FY77. $40,000	TOTAL $268,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gloeckler, G.	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A G	

NGR 21-002-270 **University of Maryland - College Park** **2261**
Research in mechanical theorem proving

Period	Obligations	
05/18/70-03/31/78	FY77 $29,928	TOTAL $143,295
Prin Invest	*NASA Tech Officer*	*CASE Category*
Minker, J	HQ-RE/Pontious, C I	21-Mathematics

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NGR 21-002-291 University of Maryland - College Park 2262
Studies of charged particles in natural and laboratory environments

Period	Obligations	
01/28/71-09/30/78	FY77: $31,300	TOTAL: $201,461
Prin Invest	*NASA Tech Officer*	*CASE Category*
Coplan, M. A.	GSFC/Ogilvie, K. W.	13-Physics
Rosenberg, T. J.		

NGR 21-002-316 University of Maryland - College Park 2263
Research program in charged particle detector technology

Period	Obligations	
07/01/71-12/31/77	FY77: $456,000	TOTAL: $1,619,717
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gloeckler, G.	GSFC/Teegarden, B. J.	13-Physics
OGallagher, J. J.		

NGR 21-002-317 University of Maryland - College Park 2264
Chemical studies of the origin of life

Period	Obligations	
08/18/71-06/31/78	FY77: $90,000	TOTAL: $665,093
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ponnamperuma, C. A.	HQ-SB/Young, R. S.	12-Chemistry

NGR 21-002-344 University of Maryland - College Park 2265
Studies on thermophysical properties in critical region of fluids

Period	Obligations	
02/16/72-02/28/78	FY77: $12,000	TOTAL: $66,999
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sengers, J. V.	LERC/Simoneau, R. J.	13-Physics

NGR 21-002-368 University of Maryland - College Park 2266
Geochemistry of lunar & meteoritic materials

Period	Obligations	
06/01/72-06/30/78	FY77:	TOTAL: $330,355
Prin Invest	*NASA Tech Officer*	*CASE Category*
Khanna, R. H	GSFC/Stief, L. J.	32-Geological Sci

NGR 21-002-390 University of Maryland - College Park 2267
Geophysical causes and measurement accuracies related to earth rotation

Period	Obligations	
12/11/72-09/10/75	FY77:	TOTAL: $12,669
Prin Invest	*NASA Tech Officer*	*CASE Category*
Currie, D. G.	GSFC/Smith, D. E.	19-Phys Sci, NEC

NGR 21-002-399 University of Maryland - College Park 2268
Urbanization and geologic processes in the Chesapeake Bay watershed

Period	Obligations	
03/01/73-03/31/78	FY77: $27,000	TOTAL: $93,311
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCuen, R. H.	GSFC/Rango, A.	32-Geological Sci
	GSFC/Salomonson, V. V	

NGR 21-002-400 University of Maryland - College Park 2269
Preliminary experiments with a split sphere high pressure apparatus

Period	Obligations	
04/17/73-09/30/77	FY77: $41,000	TOTAL: $214,641
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spain, I. L.	LERC/Coles, W. D.	13-Physics
Skelton, E. F.	LERC/Brown, G. V.	

NGR 21-002-444 University of Maryland - College Park 2270
A wide-band optical very long baseline amplitude interferometer for precise determination of the polar position

Period	Obligations	
04/01/74-10/31/76	FY77:	TOTAL: $78,986
Prin Invest	*NASA Tech Officer*	*CASE Category*
Currie, D. G.	GSFC/Bufton, J. L.	13-Physics

NGT 21-002-254 University of Maryland - College Park 2271
Summer faculty fellowship program in research for 24 faculty members

Period	Obligations	
12/23/69-03/31/78	FY77: $113,178	TOTAL: $643,368
Prin Invest	*NASA Tech Officer*	*CASE Category*
Emad, F. P.	HQ-P/Carter, C. H.	49-Engr, NEC

NSG 1075 University of Maryland - College Park 2272
Airborne in-situ atmospheric measurements of the OH free radical via a tunable ultraviolet dye laser

Period	Obligations	
07/01/75-10/31/76	FY77:	TOTAL: $73,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Davis, D. D.	LARC/Hoell, J. M.	39-Env Sci, NEC
Moriarty, A.	LARC/Young, D. C.	

NSG 1156 University of Maryland - College Park 2273
Tunable lasers for water vapor measurements and other lidar applications

Period	Obligations	
03/15/75-05/31/76	FY77:	TOTAL: $33,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gammon, R. W.	LARC/Browell, E. V.	31-Atmos Sci
Wilkerson, T. D.		
McIlrath, T. J.		

NSG 1193 University of Maryland - College Park 2274
Evaluation of alternative methods for maintenance and dissemination of engineering software

Period	Obligations	
06/01/75-05/31/77	FY77:	TOTAL: $26,415
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schaeffer, H. G	LARC/McComb, H. G., Jr.	41-Aero Engr

NSG 1336 **University of Maryland - College Park** **2275**
Water vapor lidar demonstration

Period *Obligations*
09/20/76-11/19/77 FY77: $10,000 TOTAL $10,000

Prin Invest *NASA Tech Officer* *CASE Category*
Wilkerson, T. D. LARC/Browell, E. V. 31-Atmos Sci
McIlrath, T. J.

NSG 2216 **University of Maryland - College Park** **2276**
Water vapor line strengths and pressure broadening below 1 micron wavelength

Period *Obligations*
04/01/77-12/31/77 FY77: $20,582 TOTAL $20,582

Prin Invest *NASA Tech Officer* *CASE Category*
Wilkerson, T. D. ARC/Boese, R. W. 31-Atmos Sci

NSG 3001 **University of Maryland - College Park** **2277**
Mechanical properties and the electronic structure of transition metal alloys

Period *Obligations*
03/01/74-02/28/77 FY77 TOTAL $82,888

Prin Invest *NASA Tech Officer* *CASE Category*
Drew, H. D LERC/Stephens, J. R 47-Materials Engr
Arsenault, R. J

NSG 5017 **University of Maryland - College Park** **2278**
Resource identification studies on urban watersheds using the Anacostia River Basin as an example

Period *Obligations*
07/15/74-11/30/77 FY77: $13,960 TOTAL: $63,567

Prin Invest *NASA Tech Officer* *CASE Category*
Ragan, R. M GSFC/Salomonson, V. V 32-Geological Sci

NSG 5035 **University of Maryland - College Park** **2279**
Astronomy and geophysics experiment using very long base interferometry

Period *Obligations*
12/01/74-01/31/78 FY77 $27,650 TOTAL $63,650

Prin Invest *NASA Tech Officer* *CASE Category*
Richard, J. P. GSFC/Clark, T. A 11-Astronomy

NSG 5042 **University of Maryland - College Park** **2280**
Study of CO2 waveguide laser life problem

Period *Obligations*
01/12/75-12/31/77 FY77 $40,624 TOTAL $120,685

Prin Invest *NASA Tech Officer* *CASE Category*
Hochuli, U. E. GSFC/Degnan, J. J. 49-Engr, NEC
Davis, C.

NSG 5047 **University of Maryland - College Park** **2281**
Study of the geochemistry and dispersal of radionuclides and trace metals in Chesapeake Bay sediments

Period *Obligations*
02/01/75-02/29/76 FY77. TOTAL $8,509

Prin Invest *NASA Tech Officer* *CASE Category*
Sommer, S. E. GSFC/Cressy, P. J 32-Geological Sci
Adler, I. GSFC/Trombka, J. I.

NSG 5048 **University of Maryland - College Park** **2282**
Efficient detection, analysis and classification of lightning radiation fields

Period *Obligations*
02/01/75-12/31/77 FY77 $9,998 TOTAL $30,167

Prin Invest *NASA Tech Officer* *CASE Category*
Harger, R. O GSFC/Levine, D. M 45-Elec Engr
Tretter, S. A.

NSG 5059 **University of Maryland - College Park** **2283**
Line blocking measurements in the ultraviolet spectra of Sirius, Procyon and Canopus

Period *Obligations*
03/01/75-06/30/76 FY77: TOTAL $13,200

Prin Invest *NASA Tech Officer* *CASE Category*
Bell, R. A. GSFC/Kupperian, J. E., Jr 11-Astronomy

NSG 5083 **University of Maryland - College Park** **2284**
Multiphase flows for lunar and terrestrial volcanoes

Period *Obligations*
10/01/75-09/30/77 FY77 TOTAL $19,166

Prin Invest *NASA Tech Officer* *CASE Category*
Pai, S. I. GSFC/OKeefe, J. A. 19-Phys Sci, NEC

NSG 5084 **University of Maryland - College Park** **2285**
Investigations with satellite data

Period *Obligations*
10/01/75-10/31/77 FY77: $35,000 TOTAL: $109,847

Prin Invest *NASA Tech Officer* *CASE Category*
Thompson, O. E. GSFC/Theon, J. S. 31-Atmos Sci
Fritz, S. GSFC/Arking, A.

NSG 5094 **University of Maryland - College Park** **2286**
Analysis of lunar data

Period *Obligations*
02/01/76-03/31/78 FY77 $93,100 TOTAL $139,004

Prin Invest *NASA Tech Officer* *CASE Category*
Adler, I. GSFC/Trombka, J. I. 32-Geological Sci

NSG 5112 **University of Maryland - College Park** **2287**
Magnetogeochemistry of solid solar systems bodies

Period *Obligations*
05/01/76-08/31/77 FY77: TOTAL $26,962

Prin Invest *NASA Tech Officer* *CASE Category*
Weidner, J. R. GSFC/Wasilewski, P. J 19-Physical Sci

NSG 5121 **University of Maryland - College Park** **2288**
Geochemistry of lunar materials

Period *Obligations*
07/01/76-09/30/77 FY77. TOTAL $79,061

Prin Invest *NASA Tech Officer* *CASE Category*
Weidner, J. R. GSFC/Nava, D. F 32-Geological Sci
GSFC/Philpotts, J. A

NSG 5123 **University of Maryland - College Park** **2289**
Evaluation of software engineering disciplines

Period	Obligations	
08/01/76-12/31/77	FY77: $11,970	TOTAL: $66,191
Prin Invest	*NASA Tech Officer*	*CASE Category*
Basili, V. R.	GSFC/McGarry, F. E.	49-Engr, NEC
Zelkowitz, M. V.	GSFC/Tasaki, K. K.	

NSG 5129 **University of Maryland - College Park** **2290**
Research regarding centimeter laser ranging accuracy to earth satellites

Period	Obligations	
09/17/76-11/30/77	FY77: $169,070	TOTAL: $169,070
Prin Invest	*NASA Tech Officer*	*CASE Category*
Alley, C. O.	GSFC/Johnson, T. S.	13-Physics
Currie, D. G.		

NSG 5137 **University of Maryland - College Park** **2291**
Incorporation of remotely sensed soil moisture data into hydrologic models

Period	Obligations	
12/01/76-02/28/78	FY77: $36,105	TOTAL: $36,105
Prin Invest	*NASA Tech Officer*	*CASE Category*
Witczak, M. W.	GSFC/Schmugge, T. J.	32-Geological Sci

NSG 5172 **University of Maryland - College Park** **2292**
Raman spectroscopy of cosmic ices and planetary atmospheres

Period	Obligations	
04/01/77-04/30/78	FY77: $13,390	TOTAL: $13,390
Prin Invest	*NASA Tech Officer*	*CASE Category*
Khanna, R. J.	GSFC/Donn, B. D.	12-Chemistry

NSG 5174 **University of Maryland - College Park** **2293**
Atmospheric lidar research

Period	Obligations	
06/01/77-05/31/78	FY77: $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilkerson, T. D.	GSFC/Barnes, W. L.	31-Atmos Sci

NSG 5177 **University of Maryland - College Park** **2294**
Measurement of interstellar helium impinging on the earth

Period	Obligations	
06/01/77-05/31/78	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, J. H.	GSFC/Bissell, E. E.	13-Physics
Opal, C. B.	HQ-ST/Schmerling, E. R.	
Meier, R. R		

NSG 5209 **University of Maryland - College Park** **2295**
Multidisciplinary research program in atmospheric science

Period	Obligations	
09/12/77-11/11/77	FY77: $46,000	TOTAL: $46,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thompson, O. E.	GSFC/Theon, J. S.	31-Atmos Sci
	GSFC/Halem, M.	

NSG 6010 **University of Maryland - College Park** **2296**
An in-depth investigation to assess and quantify the economic implications of management oriented remote sensing activities

Period	Obligations	
05/01/76-04/30/77	FY77:	TOTAL: $29,961
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harmon, D. M.	WFC/Alfonsi, P. J.	72-Economics
Fuller, K. B.		

NSG 7046 **University of Maryland - College Park** **2297**
Studies of the Apollo 15 and 16 orbital X-ray data

Period	Obligations	
05/01/74-03/31/78	FY77: $16,995	TOTAL: $97,156
Prin Invest	*NASA Tech Officer*	*CASE Category*
Adler, I.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7196 **University of Maryland - College Park** **2298**
Research and development of gravitational experiments for spacecraft

Period	Obligations	
03/01/76-02/28/78	FY77: $56,000	TOTAL: $100,246
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weber, J.	HQ-RR/Lundholm, J. G., Jr.	13-Physics
Richard, J. P.	JPL/Mason, P. V.	

NSG 7252 **University of Maryland - College Park** **2299**
Analysis and interpretation of X-ray data

Period	Obligations	
06/01/76-05/31/78	FY77:	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rose, W. K.	HQ-SA/Opp, A. G	11-Astronomy

NSG 7253 **University of Maryland - College Park** **2300**
Improving communications between humans and computer-directed automatic systems

Period	Obligations	
07/01/76-06/30/78	FY77: $43,000	TOTAL: $75,378
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reiger, C. J	HQ-RR/Randolph, L. P	
Minker, J	JPL/Friedman, I	22-Computer Sci

NSG 7260 **University of Maryland - College Park** **2301**
Colloquium on comparative planetology

Period	Obligations	
06/15/76-06/14/77	FY77:	TOTAL: $11,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ponnamperuma, C. A.	HQ-SL/Williams, R. J	32-Geological Sci
	HQ-SL/Flinn, E. A.	

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NSG 7284 **University of Maryland - College Park** **2302**
Research on photon counting array photometer for space applications

Period	Obligations	
10/01/76-09/30/77	FY77: $147,768	TOTAL: $147,768
Prin Invest	NASA Tech Officer	CASE Category
Currie, D. G.	HQ-SA/Rosendhal, J. D.	11-Astronomy

NSG 7285 **University of Maryland - College Park** **2303**
A study of solar X-ray bursts

Period	Obligations	
09/15/76-09/14/77	FY77: $9,000	TOTAL: $9,000
Prin Invest	NASA Tech Officer	CASE Category
Kundu, M. R.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7322 **University of Maryland - College Park** **2304**
Research on comets

Period	Obligations	
03/01/77-02/28/78	FY77: $38,500	TOTAL: $38,500
Prin Invest	NASA Tech Officer	CASE Category
AHearn, M. F.	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy

NSG 7340 **University of Maryland - College Park** **2305**
Spectral studies related to dissociation of hydrogen-bromine, hydrogen-chloride and bromine-oxide

Period	Obligations	
06/16/77-06/15/78	FY77: $29,783	TOTAL: $29,783
Prin Invest	NASA Tech Officer	CASE Category
Ginter, M. L.	HQ-SU/Greenwood, L. R. HQ-SU/Tilford, S. G.	13-Physics

NSG 7365 **University of Maryland - College Park** **2306**
Theoretical calculations of non-ballistic fluid dynamic flow for ejecta transport in models of multiring basins of impact origin

Period	Obligations	
07/01/77-06/30/78	FY77: $30,000	TOTAL: $30,000
Prin Invest	NASA Tech Officer	CASE Category
Pai, S. I.	HQ-SL/Goldstein, B. E. HQ-SL/Quade, W. J.	32-Geological Sci

NAS 6-2595 **University of Maryland - Eastern Shore** **2307**
Library services

Period	Obligations	
09/30/74-09/30/77	FY77: $61,968	TOTAL: $175,320
Prin Invest	NASA Tech Officer	CASE Category
Unavailable	WFC/Floyd, J. C. WFC/Denton, S. R.	99-Multi-Discip

NGR 21-119-001 **University of Maryland - Eastern Shore** **2308**
The fabrication of semiconductor injection lasers with output to match specific atomic transitions

Period	Obligations	
10/12/72-09/30/76	FY77:	TOTAL: $48,563
Prin Invest	NASA Tech Officer	CASE Category
Singh, G.	GSFC/Fitzmaurice, M. W.	19-Phys Sci, NEC

NGR 21-119-002 **University of Maryland - Eastern Shore** **2309**
A computer technique to vector aircraft

Period	Obligations	
04/27/72-08/31/75	FY77:	TOTAL: $29,159
Prin Invest	NASA Tech Officer	CASE Category
Nagarajon, N.	WFC/Raine, A. W.	41-Aero Engr

NGR 21-119-003 **University of Maryland - Eastern Shore** **2310**
High power pulsed laser beams and their atmospheric propagation limitations

Period	Obligations	
08/18/72-02/28/78	FY77:	TOTAL: $46,254
Prin Invest	NASA Tech Officer	CASE Category
Singh, G.	WFC/Trafford, G. H.	13-Physics

NSG 6006 **University of Maryland - Eastern Shore** **2311**
Studies of microwave radiation as a tool in soil sterilization against major diseases and pests of agricultural crops

Period	Obligations	
03/01/76-01/31/78	FY77: $34,999	TOTAL: $64,699
Prin Invest	NASA Tech Officer	CASE Category
Wutoh, J. G.	WFC/Oberholtzer, J. D.	99-Multi-Discip

NSG 6016 **University of Maryland - Eastern Shore** **2312**
A chronology and retrieval system for Wallops Flight Center atmospheric data

Period	Obligations	
09/17/76-12/16/77	FY77	TOTAL: $25,484
Prin Invest	NASA Tech Officer	CASE Category
Smith, J. C. Spurling, J. F.	WFC/Parsons, C. L.	31-Atmos Sci

NSG 6017 **University of Maryland - Eastern Shore** **2313**
Summer study on space colonies

Period	Obligations	
06/20/77-08/29/77	FY77: $5,000	TOTAL: $5,000
Prin Invest	NASA Tech Officer	CASE Category
Lynk, W. L.	WFC/Trafford, G. H.	59-Life Sci, NEC

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NSG 7325 **Amherst College** **2314**
Factors affecting assimilatory nitrate reduction by prokaryotes

Period	Obligations	
06/01/77-05/31/78	FY77: $34,810	TOTAL: $34,810
Prin Invest	NASA Tech Officer	CASE Category
Leadbetter, E. R.	HQ-SB/Young, R. S.	51-Biology

NSG 7190 **Boston College** **2315**
Coordinated analysis of auroral data and particles data from ATS-5 and ATS-6

Period	Obligations	
12/01/75-08/31/77	FY77	TOTAL: $30,000
Prin Invest	NASA Tech Officer	CASE Category
Eather, R. H.	HQ-ST/Cauffman, D. P.	13-Physics

NGR 22-004-018 **Boston University** **2316**
Ultrasonic measurement of heart volume

Period	*Obligations*	
03/01/70-12/31/77	FY77:	TOTAL: $65,511
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fulton, G. P.	HQ-SB/Larson, C. A.	59-Life Sci, NEC
Berman, H. J.		

NGR 22-004-025 **Boston University** **2317**
Microbial contributions to the precambrian earth

Period	*Obligations*	
12/15/70-09/30/77	FY77: $40,084	TOTAL: $162,437
Prin Invest	*NASA Tech Officer*	*CASE Category*
Margulis, L.	HQ-SB/Young, R. S.	32-Geological Sci

NGR 22-004-030 **Boston University** **2318**
Compressible unsteady potential aerodynamic flow around lifting bodies having arbitrary shapes & motions

Period	*Obligations*	
12/08/71-12/31/77	FY77: $75,685	TOTAL: $344,114
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morino, L.	LARC/Yates, E. C., Jr.	41-Aero Engr
Tseng, K.		

NSG 5055 **Boston University** **2319**
Investigation of the sharp-lined Tau Herculis star

Period	*Obligations*	
05/01/75-08/31/76	FY77	TOTAL: $8,671
Prin Invest	*NASA Tech Officer*	*CASE Category*
Adelman, S. J.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7063 **Boston University** **2320**
Programmed health testing in a working population

Period	*Obligations*	
05/29/74-09/01/76	FY77:	TOTAL: $6,683
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hershberg, P. I.	HQ-QG/Arnoldi, L. B.	52-Clinical Med

NSG 7254 **Boston University** **2321**
The creation of plasma holes in the ionosphere and their potential use

Period	*Obligations*	
09/01/76-08/31/77	FY77:	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mendillo, M.	HQ-ST/Taylor, W. W.	19-Physical Sci
	HQ-ST/Schmerling, E. R.	

NAS 9-15147 **Brandeis University** **2322**
Vestibular selection criteria development

Period	*Obligations*	
09/01/76-02/28/78	FY77: $20,743	TOTAL: $58,243
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lackner, J. R.	JSC/Homick, J. L.	59-Life Sci, NEC

NAS 1-10492 **Harvard University** **2323**
Participation in science planning for Viking 1975 missions in area of entry science

Period	*Obligations*	
03/25/71-09/30/77	FY77: $38,000	TOTAL: $255,207
Prin Invest	*NASA Tech Officer*	*CASE Category*
McElroy, M. B.	LARC/Williams, T. S., Jr.	31-Atmos Sci
	LARC/Glenny, W. R.	

NAS 2-9127 **Harvard University** **2324**
Interdisciplinary scientist, Pioneer/Venus program

Period	*Obligations*	
02/23/76-04/14/78	FY77: $50,182	TOTAL: $61,196
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goody, R. M.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

NAS 5-3949 **Harvard University** **2325**
Study and experiment for a high resolution ultraviolet telescope and spectrometer system

Period	*Obligations*	
01/28/65-09/30/77	FY77: $810,000	TOTAL: $38,878,486
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goldberg, L.	MSFC/Unavailable	11-Astronomy

NAS 5-23199 **Harvard University** **2326**
Atmosphere Explorer theoretical investigations

Period	*Obligations*	
03/19/73-09/19/77	FY77: $31,564	TOTAL: $164,564
Prin Invest	*NASA Tech Officer*	*CASE Category*
McElroy, M. B.	GSFC/Spencer, C. W.	31-Atmos Sci

NAS 5-23371 **Harvard University** **2327**
Investigate stellar X-ray sources

Period	*Obligations*	
04/08/76-06/07/77	FY77:	TOTAL: $9,624
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dupree, A. K.	GSFC/Underhill, A. B.	11-Astronomy

NAS 5-23494 **Harvard University** **2328**
X-ray ultraviolet spectroheliometer experiment for synchronous meteorological satellite study effort

Period	*Obligations*	
05/19/76-09/30/81	FY77: $2,548,000	TOTAL: $2,998,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reeves, F. M.	GSFC/Donley, J. L.	31-Atmos Sci

NAS 5-24134 **Harvard University** **2329**
Investigation of the upper atmosphere using data from AE satellites

Period	*Obligations*	
09/19/77-09/30/78	FY77: $56,436	TOTAL: $56,436
Prin Invest	*NASA Tech Officer*	*CASE Category*
McElroy, M. B.	GSFC/Spencer, N. W.	31-Atmos Sci
	GSFC/Kupperian, J. E., Jr.	

NAS 8-31374 **Harvard University** **2330**
Scientific data reduction and analysis activities ATM experiment S-054

Period	Obligations	
01/01/75-09/30/77	FY77 $268,000	TOTAL $811,963
Prin Invest	NASA Tech Officer	CASE Category
Vaiana, G. S	MSFC/Snoddy, W. C. MSFC/Fields, S. A.	13-Physics

NAS 8-31549 **Harvard University** **2331**
Development of a microchannel plate detector

Period	Obligations	
09/04/75-01/31/78	FY77 $98,445	TOTAL $198,352
Prin Invest	NASA Tech Officer	CASE Category
Noyes, R. W	MSFC/Bordelon, C. S MSFC/Huggins, C. E.	13-Physics

NAS 9-15326 **Harvard University** **2332**
Preliminary characterization of persisting circadian rhythms during space flight Neurospora as a model system

Period	Obligations	
06/01/77-12/01/77	FY77 $16,710	TOTAL $16,710
Prin Invest	NASA Tech Officer	CASE Category
Sulzman, F. M	JSC/Hullstetler, W. J	51-Biology

NASW 2938 **Harvard University** **2333**
Development and test of photoncounting microchannel plate detector arrays

Period	Obligations	
05/14/76-06/30/76	FY77	TOTAL $109,419
Prin Invest	NASA Tech Officer	CASE Category
Noyes, R. W	HQ-SA/Rosendhal, J. D.	49-Engr, NEC

NASW 2952 **Harvard University** **2334**
An atmospheric and oceanic nitrous oxide measurement program

Period	Obligations	
06/15/76-04/15/78	FY77 $42,173	TOTAL $122,300
Prin Invest	NASA Tech Officer	CASE Category
McElroy, M. B	HQ-SU/King, J.	33-Oceanography

NGL 22-007-006 **Harvard University** **2335**
Theoretical & experimental studies on ultraviolet solar physics

Period	Obligations	
07/10/63-12/31/78	FY77 $300,000	TOTAL $4,521,398
Prin Invest	NASA Tech Officer	CASE Category
Parkinson, W. H.	HQ-ST/Timothy, A. F.	13-Physics

NGL 22-007-069 **Harvard University** **2336**
Infrared absorption spectrophotometry of organic extractives from precambrian sediments

Period	Obligations	
05/29/66-05/31/78	FY77 $25,344	TOTAL $332,743
Prin Invest	NASA Tech Officer	CASE Category
Barghoorn, E. S.	HQ-SB/Young, R. S.	32-Geological Sci

NGL 22-007-117 **Harvard University** **2337**
Investigation of the behavior of ultrashort light pulses of picosecond duration in optical media

Period	Obligations	
04/22/68-01/31/78	FY77 $15,000	TOTAL $300,000
Prin Invest	NASA Tech Officer	CASE Category
Bloembergen, N.	GSFC/McAvoy, N.	13-Physics

NGL 22-007-228 **Harvard University** **2338**
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers

Period	Obligations	
12/15/71-09/30/79	FY77 $1	TOTAL $395,988
Prin Invest	NASA Tech Officer	CASE Category
Goody, R. M.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NGL 22-007-247 **Harvard University** **2339**
Lunar sample analysis

Period	Obligations	
06/30/72-01/31/80	FY77 $80,907	TOTAL $497,155
Prin Invest	NASA Tech Officer	CASE Category
Hays, J. F.	JSC/Harris, J. W.	12-Chemistry

NGR 22-007-202 **Harvard University** **2340**
Investigations in the far ultraviolet solar spectrum

Period	Obligations	
11/05/70-09/30/79	FY77 $23,000	TOTAL $968,000
Prin Invest	NASA Tech Officer	CASE Category
Parkinson, W. H.	HQ-ST/Timothy, A. F.	11-Astronomy

NGR 22-007-256 **Harvard University** **2341**
Bone metabolism and hormones

Period	Obligations	
03/28/73-01/01/78	FY77	TOTAL $89,132
Prin Invest	NASA Tech Officer	CASE Category
Tashjian, A. H., Jr	ARC/Young, D. R.	52-Clinical Med

NGR 22-007-269 **Harvard University** **2342**
Theoretical research in planetary physics

Period	Obligations	
09/01/73-09/30/77	FY77 $43,200	TOTAL $151,608
Prin Invest	NASA Tech Officer	CASE Category
Cameron, A. G.	HQ-SL/Dwornik, S. E. HQ-SL/Wahlmann, R.	32-Geological Sci

NGR 22-007-270 **Harvard University** **2343**
The operation of a balloon-borne 40-inch telescope for far infrared astronomy

Period	Obligations	
11/05/73-12/30/77	FY77 $100,000	TOTAL $319,868
Prin Invest	NASA Tech Officer	CASE Category
Lazio, G. G. Noyes, R. W.	HQ-SA/Boggess, N. W.	11-Astronomy

NGR 22-007-272 **Harvard University** **2344**
Theoretical studies in space astronomy

Period	Obligations	
09/01/73-08/31/78	FY77 $93,696	TOTAL $175,696
Prin Invest	NASA Tech Officer	CASE Category
Cameron, A. G.	HQ-SA/Opp, A. G.	11-Astronomy

NSG 2031 **Harvard University** **2345**
Chemistry and dynamics of trace stratospheric gases

Period	Obligations	
07/01/74-09/30/77	FY77: $87,000	TOTAL: $212,365
Prin Invest	NASA Tech Officer	CASE Category
McElroy, M. B	HQ-SU/Reed, F. I	31-Atmos Sci
Wolfsy, S. C.	HQ-SU/Tilford, S. G	

NSG 2144 **Harvard University** **2346**
Regulation of protein balance in muscle

Period	Obligations	
04/01/76-03/31/78	FY77: $30,890	TOTAL: $57,458
Prin Invest	NASA Tech Officer	CASE Category
Goldberg, A. L.	ARC/Ellis, S.	51-Biology

NSG 2265 **Harvard University** **2347**
Geometrical methods for nonlinear dynamics

Period	Obligations	
09/01/77-08/31/78	FY77: $19,000	TOTAL: $19,000
Prin Invest	NASA Tech Officer	CASE Category
Brockett, R. W	ARC/Doolin, B. F	41-Aero Engr

NSG 5099 **Harvard University** **2348**
Research of chromospheres and coronas of late-type stars

Period	Obligations	
03/01/76-04/30/77	FY77:	TOTAL: $12,000
Prin Invest	NASA Tech Officer	CASE Category
Dupree, A. K.	GSFC/Kupperian, J. E., Jr	11-Astronomy

NSG 5128 **Harvard University** **2349**
Lyman alpha coronograph research sounding rocket program

Period	Obligations	
07/15/76-10/14/79	FY77: $339,926	TOTAL: $339,926
Prin Invest	NASA Tech Officer	CASE Category
Reeves, E. M.	GSFC/Bissell, R. E.	13-Physics

NSG 5143 **Harvard University** **2350**
Ultraviolet study of V Puppis

Period	Obligations	
12/01/76-08/31/78	FY77: $995	TOTAL: $995
Prin Invest	NASA Tech Officer	CASE Category
Hannery, B. P.	GSFC/Kupperian, J. E., Jr	11-Astronomy

NSG 5160 **Harvard University** **2351**
Climate processes in the atmosphere and ocean

Period	Obligations	
02/14/77-02/13/78	FY77: $59,532	TOTAL: $59,532
Prin Invest	NASA Tech Officer	CASE Category
Lindzen, R. S.	GSFC/Halem, M.	31-Atmos Sci

NSG 5176 **Harvard University** **2352**
Research of high resolution vacuum ultraviolet absorption cross-sections of stratospheric molecules

Period	Obligations	
06/01/77-05/31/78	FY77: $47,600	TOTAL: $47,600
Prin Invest	NASA Tech Officer	CASE Category
Parkinson, W. H.	GSFC/Reed, E. I	13-Physics
Freeman, D. E.	HQ-SU/Tilford, S. G.	
Yoshino, K.		

NSG 5191 **Harvard University** **2353**
Studies of chromospheres and corona of late-type stars; reobservation of Alpha Aurigae

Period	Obligations	
08/01/77-07/31/78	FY77: $15,158	TOTAL: $15,158
Prin Invest	NASA Tech Officer	CASE Category
Dupree, A. K.	GSFC/Kupperian, J. E., Jr	11-Astronomy

NSG 7095 **Harvard University** **2354**
Reflection spectra of sodium doped ammonia ice

Period	Obligations	
10/25/74-08/31/77	FY77: $50,028	TOTAL: $120,713
Prin Invest	NASA Tech Officer	CASE Category
Pipkin, F. M.	HQ-SL/Fellows, R. I	31-Atmos Sci
	HQ-SL/Brunk, W. F.	

NSG 7175 **Harvard University** **2355**
Lyman alpha and white light coronagraph rocket instrument

Period	Obligations	
07/01/75-06/30/76	FY77	TOTAL: $250,000
Prin Invest	NASA Tech Officer	CASE Category
Reeves, E. M.	HQ-ST/Timothy, A. F.	13-Physics

NSG 7176 **Harvard University** **2356**
Participation in NASA CORE funding

Period	Obligations	
11/01/75-11/01/79	FY77:	TOTAL: $400,000
Prin Invest	NASA Tech Officer	CASE Category
Field, G. B	HQ-P/Carter, C. H	11-Astronomy
McElroy, M. B		

NSG 7191 **Harvard University** **2357**
Origin and history of the moon

Period	Obligations	
01/01/76-12/31/76	FY77	TOTAL: $16,023
Prin Invest	NASA Tech Officer	CASE Category
Cameron, A. G.	HQ-SL/Williams, R. J.	32-Geological Sci
Ward, W. R.	HQ-SL/Hinn, E. A.	

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NSG 7304 **Harvard University** **2358**
Absolute transition probabilities in ultraviolet spectra of interstellar molecules

Period *Obligations*
12/15/76-12/14/77 FY77: $32,810 TOTAL: $32,810
Prin Invest *NASA Tech Officer* *CASE Category*
Parkinson, W. H HQ-SA/Rosendahl, J. D 31-Atmos Sci

NSG 7332 **Harvard University** **2359**
Planetary speckle imaging

Period *Obligations*
03/01/77-12/31/77 FY77: $54,366 TOTAL: $54,366
Prin Invest *NASA Tech Officer* *CASE Category*
Goody, R. M. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NSG 9054 **Harvard University** **2360**
Fluid and electrolyte homeostasis during spaceflight Ground-based preparative studies in a primate

Period *Obligations*
02/01/77-01/31/78 FY77: $50,000 TOTAL: $50,000
Prin Invest *NASA Tech Officer* *CASE Category*
Moore-Ede, M. C JSC/Leach, C. S 53-Other Medical

NAS 1-9684 **Massachusetts Institute of Technology** **2361**
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis

Period *Obligations*
05/01/70-09/30/78 FY77: $236,790 TOTAL: $1,203,311
Prin Invest *NASA Tech Officer* *CASE Category*
Biemann, K LARC/Williams, T. S., Jr
LARC/Glenny, W. R. 39-Env Sci, NEC

NAS 1-9691 **Massachusetts Institute of Technology** **2362**
Participation in the science planning for the Viking 1975 missions in the area of biology

Period *Obligations*
06/15/70-09/30/77 FY77: $9,583 TOTAL: $76,929
Prin Invest *NASA Tech Officer* *CASE Category*
Rich, A. LARC/Williams, T. S., Jr 51-Biology
LARC/Glenny, W. R.

NAS 1-9702 **Massachusetts Institute of Technology** **2363**
Participation in the science planning for the Viking 1975 missions in the area of radio science

Period *Obligations*
05/20/70-09/30/78 FY77: $125,443 TOTAL: $369,200
Prin Invest *NASA Tech Officer* *CASE Category*
Shapiro, I. I LARC/Williams, T. S., Jr
LARC/Glenny, W. R 99-Multi-Discip

NAS 1-14932 **Massachusetts Institute of Technology** **2364**
Science support for the stratospheric aerosol and gas experiment

Period *Obligations*
07/06/77-09/30/79 FY77: $20,000 TOTAL: $20,000
Prin Invest *NASA Tech Officer* *CASE Category*
Cunnold, D. M. LARC/McMaster, L. R. 31-Atmos Sci
LARC/McCormick, M. P.

NAS 2-7262 **Massachusetts Institute of Technology** **2365**
Study of gust response & alleviation for propeller in cruising flight

Period *Obligations*
11/06/72-02/05/78 FY77: $91,771 TOTAL: $331,064
Prin Invest *NASA Tech Officer* *CASE Category*
Galanter, E. ARC/Rabbott, J. P., Jr. 41-Aero Engr
ARC/Johnson, W. R.

NAS 2-9132 **Massachusetts Institute of Technology** **2366**
Experiment participation, Pioneer/Venus program

Period *Obligations*
02/09/76-09/30/77 FY77 TOTAL: $ 4,115
Prin Invest *NASA Tech Officer* *CASE Category*
Shapiro, I. I. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-9151 **Massachusetts Institute of Technology** **2367**
Differential long base interferometery experiment participation

Period *Obligations*
04/13/76-02/28/77 FY77: TOTAL: $28,300
Prin Invest *NASA Tech Officer* *CASE Category*
Counselman, C. C., III ARC/Raymos, R. 11-Astronomy

NAS 2-9279 **Massachusetts Institute of Technology** **2368**
Design and fabricate a gust generator for the Ames Research Center seven-by-ten-foot wind tunnel

Period *Obligations*
07/01/76-12/31/7[illegible] FY77 TOTAL: $69,966
Prin Invest *NASA Tech Officer* *CASE Category*
Ham, N. D ARC/Rabbott, J. P., Jr 41-Aero Engr
Bauer, P. D ARC/Johnson, W. R

NAS 2-9473 **Massachusetts Institute of Technology** **2369**
Pioneer/Venus data analysis of the radar altimeter experiment

Period *Obligations*
01/20/77-11/30/78 FY77: $100,000 TOTAL: $100,000
Prin Invest *NASA Tech Officer* *CASE Category*
Tettingill, G. ARC/Hall, C. F. 11-Astronomy

NAS 2-9476 **Massachusetts Institute of Technology** **2370**
Pioneer/Venus data analysis

Period *Obligations*
07/12/77-09/30/78 FY77: $100,000 TOTAL: $100,000
Prin Invest *NASA Tech Officer* *CASE Category*
Pettengill, G. ARC/Hall, C. F. 11-Astronomy

NAS 3-20473 **Massachusetts Institute of Technology** **2371**
Testing a NASA 20-inch stage and an Air Force mass flow stage

Period *Obligations*
10/29/76-11/01/78 FY77: $306,162 TOTAL: $306,162
Prin Invest *NASA Tech Officer* *CASE Category*
Kerrebrock, J. L. LERC/McNally, W. D. 41-Aero Engr
Epstein, A. H.
Thompkins, W. T.

NAS 5-11062 **Massachusetts Institute of Technology** **2372**
IMP H&J plasma experiment

Period *Obligations*
05/17/68-10/31/77 FY77: $110,000 TOTAL: $2,149,000
Prin Invest *NASA Tech Officer* *CASE Category*
Bridge, H. S GSFC/Davis, M. A. 13-Physics

NAS 5-11450 **Massachusetts Institute of Technology** **2373**
A experiment to perform X-ray astronomy on the SAS-C spacecraft

Period *Obligations*
06/16/71-06/30/78 FY77: $988,877 TOTAL: $10,283,401
Prin Invest *NASA Tech Officer* *CASE Category*
Clark, G. W GSFC/Piterski, N. J. 11-Astronomy

NAS 5-21980 **Massachusetts Institute of Technology** **2374**
Nimbus F scanning microwave spectrometer data reduction and analysis

Period *Obligations*
01/25/74-12/31/77 FY77: $60,000 TOTAL: $553,816
Prin Invest *NASA Tech Officer* *CASE Category*
Staelin, D. H GSFC/Rathff, R. B. 31-Atmos Sci

NAS 5-22915 **Massachusetts Institute of Technology** **2375**
Nimbus-G experiment team support for solar backscattered ultraviolet and total ozone mapping system

Period *Obligations*
01/28/76-08/27/79 FY77: $30,000 TOTAL: $48,783
Prin Invest *NASA Tech Officer* *CASE Category*
Cunnold, D. M. GSFC/Heath, D. F 41-Aero Engr
GSFC/Nelsen, E. D

NAS 5-22929 **Massachusetts Institute of Technology** **2376**
Nimbus-G scanning multichannel microwave radiometer sensor

Period *Obligations*
01/28/76-12/28/79 FY77: $30,000 TOTAL: $45,000
Prin Invest *NASA Tech Officer* *CASE Category*
Staelin, D. H GSFC/Gloersen, P 41-Aero Engr

NAS 5-23624 **Massachusetts Institute of Technology** **2377**
Participation in transient source survey study

Period *Obligations*
06/24/76-03/31/77 FY77: $4,000 TOTAL: $17,000
Prin Invest *NASA Tech Officer* *CASE Category*
Bradt, H. V GSFC/Weinreb, M. B. 11-Astronomy

NAS 5-23658 **Massachusetts Institute of Technology** **2378**
Extreme ultraviolet and soft X-ray science study

Period *Obligations*
07/06/76-03/31/77 FY77: $4,000 TOTAL: $12,000
Prin Invest *NASA Tech Officer* *CASE Category*
Rappaport, S. A. GSFC/Weinreb, M. B. 11-Astronomy

NAS 5-23677 **Massachusetts Institute of Technology** **2379**
Feasibility study for a microwave spectrometer for meteorological observations from synchronous satellites

Period *Obligations*
09/28/76-12/28/77 FY77: TOTAL: $90,000
Prin Invest *NASA Tech Officer* *CASE Category*
Staelin, D. H GSFC/Shiue, J. 11-Astronomy

NAS 5-24096 **Massachusetts Institute of Technology** **2380**
Cosmic background Explorer satellite mission definition study

Period *Obligations*
10/01/76-06/30/77 FY77: $19,000 TOTAL: $19,000
Prin Invest *NASA Tech Officer* *CASE Category*
Weiss, R. GSFC/Mather, J. C 11-Astronomy
GSFC/Muller, R.

NAS 5-24139 **Massachusetts Institute of Technology** **2381**
Active and passive microwave remote sensory

Period *Obligations*
07/26/77-07/25/79 FY77: $40,000 TOTAL: $40,000
Prin Invest *NASA Tech Officer* *CASE Category*
Kong, J. A GSFC/Shiue, J. C. 45-Elec Engr

NAS 8-27972 **Massachusetts Institute of Technology** **2382**
Design, development, & operations of the AXR-2 integrated modulation collimator experiment under the HEAO program

Period *Obligations*
06/23/72-04/15/78 FY77: $311,000 TOTAL: $890,909
Prin Invest *NASA Tech Officer* *CASE Category*
Bradt, H. V MSFC/Bodie, W. G. 11-Astronomy
MSFC/Gustin, R. A.

NAS 8-27975 **Massachusetts Institute of Technology** **2383**
Design and development of the AGR-5 high energy X-ray experiment under the HEAO program

Period *Obligations*
06/23/72-04/15/78 FY77: $345,000 TOTAL: $1,442,672
Prin Invest *NASA Tech Officer* *CASE Category*
Lewin, W. H. MSFC/Jordan, W. 11-Astronomy
MSFC/Jones, J. B

NAS 8-30537 **Massachusetts Institute of Technology** **2384**
Solidification (crystal growth) in the absence of gravitational forces

Period *Obligations*
12/03/73-11/30/77 FY77: $60,000 TOTAL: $260,000
Prin Invest *NASA Tech Officer* *CASE Category*
Gatos, H. C MSFC/Davidson, M. C
Whitt, A. F MSFC/Schafer, C. F 47-Materials Engr

NAS 8-30576 **Massachusetts Institute of Technology** **2385**
Quantitative determination of zero-effects on electronic materials processing

Period	*Obligations*	
12/10/73-09/30/76	FY77:	TOTAL: $117,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gatos, H. C	MSFC/Adams, W. R.	19-Phys Sci, NEC
Witt, A. F.	MSFC/Boese, A.	

NAS 8-30752 **Massachusetts Institute of Technology** **2386**
Design, development and operations of the HEAO mission B telescope experiment

Period	*Obligations*	
06/01/74-12/31/79	FY77: $303,000	TOTAL: $1,916,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clark, G. W.	MSFC/Manning, H. S.	11-Astronomy
Bradt, H. V.	MSFC/Power, J. A.	
Cabizares C. R.		

NAS 8-31350 **Massachusetts Institute of Technology** **2387**
Uniform dispersions of crystallization processing

Period	*Obligations*	
07/01/75-02/28/78	FY77: $78,769	TOTAL: $381,509
Prin Invest	*NASA Tech Officer*	*CASE Category*
Uhlmann, D. R.	MSFC/Chassay, R. P.	47-Materials Engr

NAS 8-31552 **Massachusetts Institute of Technology** **2388**
Contact and coalescence of viscous and viscoelastic bodies

Period	*Obligations*	
11/01/75-03/31/78	FY77: $6,900	TOTAL: $125,275
Prin Invest	*NASA Tech Officer*	*CASE Category*
Uhlmann, D. R.	MSFC/Reeves, F. A.	47-Materials Engr
	MSFC/Snyder, R. S.	

NAS 9-12334 **Massachusetts Institute of Technology** **2389**
Apollo passive seismic experiment

Period	*Obligations*	
01/07/72-01/31/78	FY77: $114,100	TOTAL: $539,736
Prin Invest	*NASA Tech Officer*	*CASE Category*
Toksoz, M. N.	JSC/Eichelman, W. F.	31-Atmos Sci

NAS 9-12485 **Massachusetts Institute of Technology** **2390**
Mechanisms of deterioration of nutrients

Period	*Obligations*	
03/17/72-06/30/78	FY77:	TOTAL: $311,664
Prin Invest	*NASA Tech Officer*	*CASE Category*
Karel, M	JSC/Smith, M. C., Jr.	53-Other Medical

NAS 9-15194 **Massachusetts Institute of Technology** **2391**
Potential use of nutritional factors to optimize performance under stress

Period	*Obligations*	
12/01/76-11/30/77	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Munro, H. N.	JSC/Rambaut, P. C.	59-Life Sci, NEC

NAS 9-15343 **Massachusetts Institute of Technology** **2392**
Definition of Spacelab 1 experiment on vestibular experiments

Period	*Obligations*	
04/04/77-09/30/77	FY77: $45,000	TOTAL: $45,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Young, L. R.	JSC/Luczkowski, S. M.	59-Life Sci, NEC
	JSC/Huffstetler, W. J.	

NASW 2787 **Massachusetts Institute of Technology** **2393**
Study in the area of international networking aspects and implications of high data rates

Period	*Obligations*	
05/02/75-05/31/76	FY77:	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-EC/Freibaum, J.	45-Elec Engr

NASW 3008 **Massachusetts Institute of Technology** **2394**
Preliminary design and development of an infrared reflectance spectrometer

Period	*Obligations*	
04/01/77-05/31/77	FY77: $89,800	TOTAL: $89,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCord, T. B.	HQ-SL/Smith, M. J.	11-Astronomy

NGL 22-009-013 **Massachusetts Institute of Technology** **2395**
Research on problems of communication in space environment

Period	*Obligations*	
12/27/62-10/31/78	FY77:	TOTAL: $1,346,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kennedy, R. S.	HQ-RE/Alsberg, H.	45-Elec Engr
	GSFC/McAvoy, N.	

NGL 22-009-015 **Massachusetts Institute of Technology** **2396**
Theoretical and experimental investigations of interplanetary medium and in gamma ray astronomy

Period	*Obligations*	
01/01/63-12/31/78	FY77: $156,841	TOTAL: $4,316,339
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bridge, H. S.	HQ-ST/Taylor, W. W.	13-Physics
	HQ-ST/Schmerling, E. R.	

NGL 22-009-124 **Massachusetts Institute of Technology** **2397**
Control optimization stabilization and computation of algorithms for space applications

Period	*Obligations*	
03/30/66-12/31/79	FY77: $70,000	TOTAL: $762,289
Prin Invest	*NASA Tech Officer*	*CASE Category*
Athans, M.	ARC/Doolin, B. F.	49-Engr, NEC
Willsky, A. S.		
Mitter, S. K.		

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NGL 22-009-125 Massachusetts Institute of Technology 2398
Studies on the relationship between crystalline structure and superconductivity

Period	Obligations	
05/05/66-03/31/77	FY77	TOTAL $279,624

Prin Invest	NASA Tech Officer	CASE Category
Gatos, H C	MSFC/Dahms, J MSFC/Stern, H J	13-Physics

NGL 22-009-187 Massachusetts Institute of Technology 2399
Lunar geophysics, as related to the Apollo applications program

Period	Obligations	
09/02/66-02/28/78	FY77	TOTAL $638,782

Prin Invest	NASA Tech Officer	CASE Category
Press, F Burns, R G Counselman, C C, III	HQ-SL/Kosofsky, L J HQ-SL/Roberson, F I	32-Geological Sci

NGL 22-009-308 Massachusetts Institute of Technology 2400
Maturation and development of mechanisms of orientation and postural control

Period	Obligations	
12/01/67-11/30/79	FY77 $38,000	TOTAL $794,646

Prin Invest	NASA Tech Officer	CASE Category
Held, R M	ARC/Daunton, N G	69-Psych, NEC

NGL 22-009-383 Massachusetts Institute of Technology 2401
Research in propulsion and power generation

Period	Obligations	
01/16/69-08/31/79	FY77	TOTAL $920,000

Prin Invest	NASA Tech Officer	CASE Category
Kerrebrock, J L	LERC/McNally, W D	41-Aero Engr

NGL 22-009-521 Massachusetts Institute of Technology 2402
Composition and structure of planetary atmospheres

Period	Obligations	
08/10/70-06/30/79	FY77 $79,983	TOTAL $524,432

Prin Invest	NASA Tech Officer	CASE Category
Lewis, J S	HQ-SL/Fellows, R E HQ-SL/Brunk, W E	31-Atmos Sci

NGL 22-009-548 Massachusetts Institute of Technology 2403
Flight control systems research

Period	Obligations	
08/17/70-05/30/77	FY77	TOTAL $312,818

Prin Invest	NASA Tech Officer	CASE Category
Whitaker, H D	DFRC/Szalai, K J	41-Aero Engr

NGL 22-009-638 Massachusetts Institute of Technology 2404
Research in space science

Period	Obligations	
03/03/72-02/28/80	FY77 $300,000	TOTAL $1,300,000

Prin Invest	NASA Tech Officer	CASE Category
McCarthy, J F, Jr	HQ-P/Carter, C H	99-Multi-Discip

NGL 22-009-640 Massachusetts Institute of Technology 2405
Joint university research program future air transportation technological needs

Period	Obligations	
11/16/71-01/31/80	FY77 $75,000	TOTAL $418,332

Prin Invest	NASA Tech Officer	CASE Category
Simpson, R W	LARC/Reid, H J, Jr LARC/Mael, W D	41-Aero Engr

NGR 22-009-005 Massachusetts Institute of Technology 2406
Detection & identification of organic matter by mass spectrometry

Period	Obligations	
12/01/61-09/30/77	FY77 $92,800	TOTAL $958,262

Prin Invest	NASA Tech Officer	CASE Category
Biemann, K	HQ-SB/Young, R S	51-Biology

NGR 22-009-102 Massachusetts Institute of Technology 2407
Investigation of the effect of space environment on replica gratings

Period	Obligations	
06/28/66-12/01/77	FY77	TOTAL $193,638

Prin Invest	NASA Tech Officer	CASE Category
Biemann, K	HQ-SL/Young, R S	42-Astro Engr

NGR 22-009-277 Massachusetts Institute of Technology 2408
The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides

Period	Obligations	
12/01/67-09/30/77	FY77 $40,787	TOTAL $480,589

Prin Invest	NASA Tech Officer	CASE Category
Rich, A	HQ-SB/Young, R S	12-Chemistry

NGR 22-009-339 Massachusetts Institute of Technology 2409
Investigation of containment control of fragments from bursting turbine rotors

Period	Obligations	
06/14/68-12/01/77	FY77 $36,378	TOTAL $671,293

Prin Invest	NASA Tech Officer	CASE Category
Witmer, E A Stagliano, T R	LERC/Holms, A G LERC/Weiss, S	41-Aero Engr

NGR 22-009-378 Massachusetts Institute of Technology 2410
Study of pollutants from jet aircraft

Period	Obligations	
02/14/69-10/31/77	FY77	TOTAL $643,396

Prin Invest	NASA Tech Officer	CASE Category
Heywood, J B Chigier, N A Ods, W O	LERC/Mularz, E J LERC/Grobman, J S	43-Chem Engr

NGR 22-009-473 Massachusetts Institute of Technology 2411
Planetary astronomy

Period	Obligations	
06/10/70-12/31/76	FY77 $2,930	TOTAL $802,030

Prin Invest	NASA Tech Officer	CASE Category
McCord, T B	HQ-SL/Brunk, W E HQ-SL/Fellows, R E	11-Astronomy

NGR 22-009-526 Massachusetts Institute of Technology 2412
Astronomy in the region between 1 mm to 0.1 mm wavelengths

Period	Obligations	
09/22/70-09/31/77	FY77: $58,000	TOTAL: $355,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weiss, R	HQ-SA/Boggess, N. W	11-Astronomy
	HQ-SA/Roman, N. G.	

NGR 22-009-540 Massachusetts Institute of Technology 2413
Lunar sample analysis

Period	Obligations	
02/08/71-01/31/78	FY77: $35,000	TOTAL: $466,325
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simmons, M. G.	JSC/Harris, J. L.	13-Physics

NGR 22-009-551 Massachusetts Institute of Technology 2414
Lunar sample analysis

Period	Obligations	
02/11/71-01/31/78	FY77: $60,000	TOTAL: $357,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burns, R. G.	JSC/Harris, J. W	12-Chemistry

NGR 22-009-583 Massachusetts Institute of Technology 2415
Spectroscopy of the asteroids

Period	Obligations	
10/26/71-09/30/76	FY77:	TOTAL: $130,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCord, T. B	HQ-SL/Fellows, R. F.	11-Astronomy
	HQ-SL/Donn, B. D	

NGR 22-009-627 Massachusetts Institute of Technology 2416
Control of serotonin-containing neurons in the brain, by plasma tryptophan

Period	Obligations	
08/04/71-12/31/77	FY77: $50,000	TOTAL: $361,503
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wurtman, R. J	ARC/Winget, C. M.	53-Other Medical
Fernstrom, J	ARC/Danellis, J. V.	

NGR 22-009-646 Massachusetts Insitute of Technology 2417
Lunar sample analysis

Period	Obligations	
06/16/71-01/31/78	FY77: $79,900	TOTAL: $434,996
Prin Invest	*NASA Tech Officer*	*CASE Category*
Uhlmann, D. R	JSC/Harris, J. W	47-Materials Engr

NGR 22-009-6[illegible] Massachusetts Institute of Technology 2418
Ground based radar study of the moon and planets

Period	Obligations	
03/[illegible]72-10/31/77	FY77:	TOTAL: $229,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pettengill, G. H.	HQ-SL/Brunk, W. E	11-Astronomy
	HQ-SL/Fellows, R. F	

NGR 22-009-701 Massachusetts Institute of Technology 2419
Integration of visual and motion requirements for flight simulation and ride quality investigation

Period	Obligations	
05/18/72-02/28/77	FY77:	TOTAL: $328,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Young, L. R.	LARC/Queijo, M. J.	41-Aero Engr

NGR 22-009-723 Massachusetts Institute of Technology 2420
Bosch process and evaluation of Bosch carbon as a sorbent

Period	Obligations	
09/19/72-12/31/78	FY77: $29,488	TOTAL: $130,189
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reid, R. C.	ARC/Quattrone, P. D.	12-Chemistry

NGR 22-009-727 Massachusetts Institute of Technology 2421
Study in numerical modeling of atmospheric phenomena

Period	Obligations	
02/01/73-12/31/79	FY77: $139,000	TOTAL: $464,863
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stone, P. H.	GSFC/Halem, M.	31-Atmos Sci
Charney, J. G		

NGR 22-009-730 Massachusetts Institute of Technology 2422
X-ray astronomy experiments from sounding rockets

Period	Obligations	
03/22/72-08/31/78	FY77: $200,000	TOTAL: $910,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bradt, H. V	GSFC/Bissell, L. E	11-Astronomy
Rappaport, S. A.	HQ-SA/Opp, A. G	

NGR 22-009-735 Massachusetts Institute of Technology 2423
EOTVOS experiment in earth orbit and related studies

Period	Obligations	
06/07/73-06/30/77	FY77	TOTAL: $100,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chapman, P. K	HQ-MT/Roberts, J. L	13-Physics

NGR 22-009-741 Massachusetts Institute of Technology 2424
Optical and infrared lasers

Period	Obligations	
12/01/72-03/31/78	FY77: $50,000	TOTAL: $220,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Javan, A	GSFC/McAvoy, N	13-Physics
	GSFC/McElroy, J. H	

NGR 22-009-766 Massachusetts Institute of Technology 2425
Monitoring spacecraft atmosphere contaminants by laser absorption spectroscopy

Period	Obligations	
01/01/74-05/31/78	FY77: $32,170	TOTAL: $100,455
Prin Invest	*NASA Tech Officer*	*CASE Category*
Steinfeld, J. I.	ARC/Quattrone, P. D.	12-Chemistry
	ARC/Wydeven, T. J	

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NGR 22-009-781 **Massachusetts Institute of Technology** **2426**
Exploitation of advanced composite materials to lightly loaded structures

Period	*Obligations*	
04/16/73-10/31/76	FY77:	TOTAL $99,752
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mar, J. W.	LARC/Rhodes, M. D LARC/Stein, M	41-Aero Engr

NGR 22-009-790 **Massachusetts Institute of Technology** **2427**
Remote compositional mapping of the lunar surface

Period	*Obligations*	
06/22/73-01/31/79	FY77	TOTAL $1,084,165
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCord, T. B.	HQ-SL/Williams, R. J. HQ-SL/Flinn, E. A.	32-Geological Sci

NGR 22-009-798 **Massachusetts Institute of Technology** **2428**
Role of brain areas controlling eye-head coordination in monkeys

Period	*Obligations*	
09/01/73-11/30/77	FY77: $20,000	TOTAL: $118,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bizzi, E.	ARC/Daunton, N. G.	51-Biology

NGR 22-009-799 **Massachusetts Institute of Technology** **2429**
Liquid phase catalytic reforming of organic spacecraft waste

Period	*Obligations*	
10/01/73-05/31/78	FY77:	TOTAL $95,890
Prin Invest	*NASA Tech Officer*	*CASE Category*
Modell, M.	ARC/Quattrone, P. D.	12-Chemistry

NGR 22-009-805 **Massachusetts Institute of Technology** **2430**
Flow-generated noise and aeroacoustic instabilities in ducts and silencers

Period	*Obligations*	
09/01/73-10/31/76	FY77:	TOTAL $47,230
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ingard, K. U.	LERC/Baumeister, K. J.	41-Aero Engr

NGR 22-009-818 **Massachusetts Institute of Technology** **2431**
Aerodynamics of bird flight

Period	*Obligations*	
09/01/73-08/31/78	FY77:	TOTAL: $78,133
Prin Invest	*NASA Tech Officer*	*CASE Category*
Widnall, S. E.	LARC/Hoad, D. R. LARC/Margason, R. J.	41-Aero Engr

NGR 22-009-826 **Massachusetts Institute of Technology** **2432**
Neural orientation growth and maintenance

Period	*Obligations*	
09/01/73-11/30/77	FY77 $20,000	TOTAL: $118,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nauta, W. J. Teuber, H. L.	ARC/Daunton, N. G.	51-Biology

NGR 22-009-839 **Massachusetts Institute of Technology** **2433**
Wideband recording system for very long baseline interferometry

Period	*Obligations*	
04/01/74-04/30/78	FY77: $73,600	TOTAL $295,290
Prin Invest	*NASA Tech Officer*	*CASE Category*
Counselman, C. C., III Shapiro, I. I.	GSFC/Clark, T. A. GSFC/Ryan, J. W.	99-Multi-Discip

NSG 1018 **Massachusetts Institute of Technology** **2434**
Multiple model adaptive control method for flight control systems

Period	*Obligations*	
03/06/74-05/05/77	FY77	TOTAL $157,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Athans, M.	LARC/Gera, J. LARC/Elliott, J. R.	41-Aero Engr

NSG 1048 **Massachusetts Institute of Technology** **2435**
Wet photoelectric cells, conversion, transfer and storage of intense optical energy

Period	*Obligations*	
05/15/74-02/14/78	FY77: $36,120	TOTAL: $208,935
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wrighton, M. S.	LARC/Bysik, C. E. LARC/Hess, R. V.	12-Chemistry

NSG 1190 **Massachusetts Institute of Technology** **2436**
Characterization of high energy gap semi-conductor

Period	*Obligations*	
10/01/75-09/30/78	FY77:	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gatos, H. C.	LARC/Bysik, C. E. LARC/Conway, E. J.	47-Materials Engr

NSG 1219 **Massachusetts Institute of Technology** **2437**
Research on unsteady, nonlinear transonic flow

Period	*Obligations*	
07/10/75-01/09/78	FY77 $12,570	TOTAL $74,858
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harris, W. L.	LARC/Bland, S. R. LARC/Bennett, R. M.	41-Aero Engr

NSG 1292 **Massachusetts Institute of Technology** **2438**
Study feasibility of applying digital information processing to a magnetic model suspension and balance for use with wind tunnels

Period	*Obligations*	
04/01/76-11/30/77	FY77 $8,642	TOTAL $37,794
Prin Invest	*NASA Tech Officer*	*CASE Category*
Covert, E. E.	LARC/Boyden, R. P. LARC/Kilgore, R. A.	41-Aero Engr

NSG 1299 **Massachusetts Institute of Technology** **2439**
Survey of the potential users of the long duration exposure facilities

Period	Obligations	
04/01/76-09/30/76	FY77:	TOTAL. $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCarthy, J. F., Jr.	LARC/ONeal, R. L.	99-Multi-Discip
	LARC/DiBattista, J. D	

NSG 1312 **Massachusetts Institute of Technology** **2440**
Optimal design methods for multivariable sampled-data digital control systems

Period	Obligations	
07/01/76-10/15/77	FY77:	TOTAL. $49,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Athans, M.	LARC/Armstrong, E. S.	45-Elec Engr
Gould, L. A	LARC/Elliott, J. R.	

NSG 1323 **Massachusetts Institute of Technology** **2441**
Research in algebraic manipulation

Period	Obligations	
07/01/76-06/30/78	FY77. $44,984	TOTAL. $94,984
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moses, J	LARC/Shoosmith, J. N	22-Computer Sci

NSG 1337 **Massachusetts Institute of Technology** **2442**
Early stages of oxidation of metal surfaces Experiment proposed for the molecular beam apparatus of the Shuttle program

Period	Obligations	
10/01/76-03/31/78	FY77: $30,000	TOTAL $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gatos, H. C	LARC/Outlaw, R. A	47-Materials Engr
Johnson, K. H.	LARC/Melfi, L. T., Jr.	

NSG 1349 **Massachusetts Institute of Technology** **2443**
Dynamic fracture and crack arrest in advanced fiber composites

Period	Obligations	
01/01/77-12/31/77	FY77. $29,171	TOTAL. $29,171
Prin Invest	*NASA Tech Officer*	*CASE Category*
Williams, J. H., Jr.	LARC/Fichter, W. B	46-Mech Engr

NSG 1356 **Massachusetts Institute of Technology** **2444**
Study of feasibility of applying superconducting coil technology to general purpose magnetic balance and suspension system

Period	Obligations	
01/01/77-12/31/77	FY77. $50,668	TOTAL. $50,668
Prin Invest	*NASA Tech Officer*	*CASE Category*
Covert, E. E.	LARC/Boyden, R. P	41-Aero Engr
Haldeman, C. W	LARC/Kilgore, R. A.	

NSG 1413 **Massachusetts Institute of Technology** **2445**
Distributed feedback and grating-coupled emission lead-tin telluride double heterojunction laser diodes

Period	Obligations	
05/01/77-04/30/78	FY77. $44,970	TOTAL. $44,970
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fonstad, C. G.	LARC/Allario, F	13-Physics

NSG 1416 **Massachusetts Institute of Technology** **2446**
Analytical evaluation of two motion washout techniques

Period	Obligations	
05/01/77-10/31/77	FY77: $25,000	TOTAL $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Young, L. R.	LARC/Queijo, M. J	41-Aero Engr
Oman, C. M.	LARC/Miller, G. K.	

NSG 1447 **Massachusetts Institute of Technology** **2447**
Performance criterion and model uncertainty issues for log designs in flight control

Period	Obligations	
08/15/77-08/14/78	FY77. $43,800	TOTAL. $43,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Athans, M.	LARC/Armstrong, E. S.	45-Elec Engr
Stein, G.	LARC/Elliott, J. R.	

NSG 2010 **Massachusetts Institute of Technology** **2448**
Study of impact on space shuttle on stratospheric ozone

Period	Obligations	
03/01/74-12/31/77	FY77: $252,350	TOTAL $630,260
Prin Invest	*NASA Tech Officer*	*CASE Category*
Prinn, R. G	ARC/Reynolds, R. T.	31-Atmos Sci
	ARC/Whitten, R. C.	

NSG 2032 **Massachusetts Institute of Technology** **2449**
Research on habituation to novel visual-vestibular environments with particular reference to space flight

Period	Obligations	
07/01/74-01/15/78	FY77: $100,000	TOTAL: $271,003
Prin Invest	*NASA Tech Officer*	*CASE Category*
Young, L. R.	ARC/Daunton, N. G	59-Life Sci, NEC
Oman, C. M.		

NSG 2095 **Massachusetts Institute of Technology** **2450**
High speed rotor noise research

Period	Obligations	
08/01/75-11/30/77	FY77	TOTAL. $64,908
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harris, W. L.	ARC/Rabbott, J. P., Jr	41-Aero Engr
Lee, Y. A.		

NSG 2118 **Massachusetts Institute of Technology** **2451**
Experimentation in supervisory controls flight management

Period	Obligations	
11/01/75-11/30/77	FY77 $58,000	TOTAL. $112,710
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sheridan, T. B	ARC/Wempe, T. F.	99-Multi-Discip

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NSG 2129 **Massachusetts Institute of Technology** **2452**
The impact of changing technology on the demand for air transportation

Period	Obligations	
12/01/75-11/30/77	FY77: $139,900	TOTAL: $239,141

Prin Invest	NASA Tech Officer	CASE Category
Taneja, N. K.	ARC/Williams, L. J.	41-Aero Engr
Simpson, R. W.	ARC/Waters, M. H.	
Kneafsey, J. T.		

NSG 2142 **Massachusetts Institute of Technology** **2453**
Helicopter rotor noise

Period	Obligations	
07/01/76-06/30/78	FY77: $45,125	TOTAL: $86,517

Prin Invest	NASA Tech Officer	CASE Category
Widnall, S. E.	ARC/Biggers, J. C.	41-Aero Engr
	ARC/Rabbott, J. P., Jr.	

NSG 2172 **Massachusetts Institute of Technology** **2454**
Far infrared observations of AFCRL sources to be made from the C-141

Period	Obligations	
07/01/76-06/30/78	FY77: $27,517	TOTAL: $27,517

Prin Invest	NASA Tech Officer	CASE Category
Kleinman, S. G.	ARC/Gillespie, C. M., Jr.	11-Astronomy
	ARC/Cameron, R. M.	

NSG 2180 **Massachusetts Institute of Technology** **2455**
Simulation evaluation of combined four-dimensional area navigation and airborne traffic situation displays and procedures applied to terminal area maneuvers

Period	Obligations	
09/01/76-08/31/78	FY77: $56,000	TOTAL: $111,800

Prin Invest	NASA Tech Officer	CASE Category
Athans, M.	ARC/Wempe, T. F.	99-Multi-Discip
Connelly, M. E.	ARC/Huff, F. M.	

NSG 2196 **Massachusetts Institute of Technology** **2456**
Stratospheric transport processes and the interpretation of data on minor constituents

Period	Obligations	
12/01/76-12/01/77	FY77: $66,600	TOTAL: $66,600

Prin Invest	NASA Tech Officer	CASE Category
Alyea, F.	ARC/Popoff, I. G.	31-Atmos Sci
Cunnold, D. M.		
Prinn, R. G.		

NSG 2204 **Massachusetts Institute of Technology** **2457**
Research of advanced materials for the development of a fire-safe aircraft seat

Period	Obligations	
01/01/77-12/31/77	FY77: $26,750	TOTAL: $26,750

Prin Invest	NASA Tech Officer	CASE Category
Tesoro, G.	ARC/Fewell, L. L.	47-Materials Engr
	ARC/Kourtides, D. A.	

NSG 2230 **Massachusetts Institute of Technology** **2458**
Visual vestibular interaction and its application to flight simulation

Period	Obligations	
04/01/77-03/31/78	FY77: $59,888	TOTAL: $59,888

Prin Invest	NASA Tech Officer	CASE Category
Young, L. R.	ARC/Stewart, J. D.	49-Engr, NEC
Oman, C. M.	ARC/Nagel, D. C.	

NSG 3017 **Massachusetts Institute of Technology** **2459**
Silicon surface phenomena related to energy conversion

Period	Obligations	
05/01/74-10/21/77	FY77: $44,000	TOTAL: $125,100

Prin Invest	NASA Tech Officer	CASE Category
Gatos, H. C.	LERC/Weinberg, I.	13-Physics
	LERC/Brandhorst, H. R.	

NSG 3044 **Massachusetts Institute of Technology** **2460**
Special finite elements for the analysis of flaw growth and fracture in fiber composites

Period	Obligations	
02/01/75-04/30/78	FY77: $59,985	TOTAL: $199,195

Prin Invest	NASA Tech Officer	CASE Category
McGarry, F. G.	LERC/Chamis, C. C.	49-Engr, NEC
Mandell, J. F.	LERC/Smith, G. T.	

NSG 3046 **Massachusetts Institute of Technology** **2461**
Directional solidification of gamma/gamma prime-delta in situ composites

Period	Obligations	
06/30/75-07/01/77	FY77: $39,905	TOTAL: $129,528

Prin Invest	NASA Tech Officer	CASE Category
Flemings, M. C.	LERC/Scheuermann, C. M.	
Young, K. P.		47-Materials Engr

NSG 3061 **Massachusetts Institute of Technology** **2462**
A chromatographic analysis of the response of polymeric fire-detection devices to combustion

Period	Obligations	
05/01/75-02/28/77	FY77:	TOTAL: $85,000

Prin Invest	NASA Tech Officer	CASE Category
Senturia, S. D.	LERC/Gluyas, R. E.	19-Phys Sci, NEC
Kastner, M. A.		
Fonstad, C. G.		

NSG 3064 **Massachusetts Institute of Technology** **2463**
Monitoring of elastic stresses by acoustic emission

Period	Obligations	
07/01/75-06/30/78	FY77:	TOTAL: $78,420

Prin Invest	NASA Tech Officer	CASE Category
Williams, J. H., Jr.	LERC/Vary, A.	47-Materials Engr

NSG 3076 **Massachusetts Institute of Technology** **2464**
Effects of fuel composition on soot formation in combusters

Period	Obligations	
09/01/75-09/30/78	FY77: $50,000	TOTAL $159,155
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keck, J. C.	LERC/Norgren, C. T.	41-Aero Engr
Hoult, D. P.		

NSG 3079 **Massachusetts Institute of Technology** **2465**
Development of techniques for turbomachinery flutter clearance

Period	Obligations	
07/15/75-10/14/77	FY77:	TOTAL: $99,933
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kerrebrock, J. L.	LERC/Adamczyk, J. J.	41-Aero Engr
Dugundji, J.		

NSG 3088 **Massachusetts Institute of Technology** **2466**
Submillimeter laser Thomson scattering system for measurement of ion temperatures in Summa

Period	Obligations	
12/11/75-03/01/77	FY77	TOTAL $59,686
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lax, B.	LERC/Reinmann, J. J.	13-Physics
Cohn, D. R.		

NSG 3093 **Massachusetts Institute of Technology** **2467**
Fluorescent visualization for turbomachine research

Period	Obligations	
01/05/76-01/05/77	FY77:	TOTAL $84,820
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kerrebrock, J. L.	LERC/McNally, W. D.	41-Aero Engr
Epstein, A. H.		

NSG 3102 **Massachusetts Institute of Technology** **2468**
Soot information and burnout in flames

Period	Obligations	
03/15/76-09/15/77	FY77	TOTAL $43,390
Prin Invest	*NASA Tech Officer*	*CASE Category*
Howard, J. B.	LERC/Norgren, C. T.	43-Chem Engr

NSG 3129 **Massachusetts Institute of Technology** **2469**
Studies of flow noise and acoustic power flow in lined ducts

Period	Obligations	
11/01/76-10/31/79	FY77 $51,000	TOTAL: $51,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ungard, K. U.	LERC/Baumeister, K. J.	41-Aero Engr
	LERC/Heiler, C. E.	

NSG 5076 **Massachusetts Institute of Technology** **2470**
Numerical study of the atmospheric circulation of Venus

Period	Obligations	
08/17/75-11/30/77	FY77 $6,000	TOTAL $64,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rivas, F. K.	GSFC/Hansen, J. E.	11-Astronomy
Stone, P. H.		

NSG 5095 **Massachusetts Institute of Technology** **2471**
Assessment of the effects of attenuation and beam width on weather observations

Period	Obligations	
02/01/76-01/31/77	FY77:	TOTAL $15,370
Prin Invest	*NASA Tech Officer*	*CASE Category*
Austin, P. M.	GSFC/Wexler, R.	31-Atmos Sci
Geotis, S. G.		

NSG 5113 **Massachusetts Institute of Technology** **2472**
Research in stratospheric dynamics

Period	Obligations	
07/01/76-02/28/78	FY77: $22,935	TOTAL $42,935
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stone, P. H.	GSFC/Hansen, J. E.	31-Atmos Sci

NSG 5150 **Massachusetts Institute of Technology** **2473**
Shuttle based very long baseline interferometry

Period	Obligations	
01/01/77-12/31/77	FY77: $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burke, B. F.	GSFC/Stone, R. [illegible]	11-Astronomy

NSG 5157 **Massachusetts Institute of Technology** **2474**
High speed correlation algorithms for massively parallel machines

Period	Obligations	
02/01/77-01/31/78	FY77: $52,000	TOTAL: $52,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McClellan, J. H.	GSFC/Schaefer, D. H.	45-Elec Engr

NSG 5166 **Massachusetts Institute of Technology** **2475**
Theoretical and numerical study of climate and climate change

Period	Obligations	
03/21/77-03/20/80	FY77 $103,287	TOTAL $103,287
Prin Invest	*NASA Tech Officer*	*CASE Category*
Charney, J. G.	GSFC/Halem, M.	31-Atmos Sci
Stone, P. H.		

NSG 5204 **Massachusetts Institute of Technology** **2476**
Evaluation of the quality of precipitation data from satellite-borne radar

Period	Obligations	
09/01/77-05/31/78	FY77 $9,400	TOTAL $9,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Austin, P. M.	GSFC/Wexler, R.	31-Atmos Sci
Geotis, S. G.		

NSG 7010 **Massachusetts Institute of Technology** **2477**
Precision selenodesy and lunar libration through very long baseline interferometry observation of ALSEPS

Period	Obligations	
01/01/74-03/31/78	FY77 $96,520	TOTAL $310,520
Prin Invest	*NASA Tech Officer*	*CASE Category*
Counselman, C. C., III	HQ-SL/Williams, R. J.	32-Gelogical Sci
	HQ-SL/Flinn, E. A.	

NSG 7048 **Massachusetts Institute of Technology** **2478**
Structure and composition of a lunar region: A synthesis

Period	Obligations	
03/01/74-02/28/77	FY77	TOTAL: $149,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCord, T. B.	HQ-SL/Williams, R. J.	32-Geological Sci
	HQ-SL/Flinn, E. A.	

NSG 7077 **Massachusetts Institute of Technology** **2479**
Chemical aspects of lunar origin and physical studies on lunar and meteoritic materials

Period	Obligations	
07/01/74-05/31/78	FY77:	TOTAL: $58,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	HQ-SL/Williams, R. J.	32-Geological Sci
Brecher, A.		
Skibo, D. N.		

NSG 7081 **Massachusetts Institute of Technology** **2480**
Models of the composition, structure and evolution of the lunar interior

Period	Obligations	
06/01/74-02/28/80	FY77: $162,071	TOTAL: $600,481
Prin Invest	*NASA Tech Officer*	*CASE Category*
Toksoz, M. N.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7091 **Massachusetts Institute of Technology** **2481**
Experimental relativity and gravitation study

Period	Obligations	
09/15/74-12/31/75	FY77:	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weiss, R.	HQ-SA/Roman, N. G.	11-Astronomy

NSG 7118 **Massachusetts Institute of Technology** **2482**
Very long baseline interferometry observations of ALSEP transmitters

Period	Obligations	
01/01/75-09/30/77	FY77	TOTAL: $58,176
Prin Invest	*NASA Tech Officer*	*CASE Category*
Counselman, C. C., III	HQ-SL/Goldstein, B. E.	32-Geological Sci

NSG 7186 **Massachusetts Institute of Technology** **2483**
An observatory search for and study of new IR sources reported in the AFCRL catalogue

Period	Obligations	
12/01/75-11/30/77	FY77: $30,000	TOTAL: $60,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kleinmann, S.	HQ-SA/Boggess, N. W.	11-Astronomy
	HQ-SA/Roman, N. G.	

NSG 7227 **Massachusetts Institute of Technology** **2484**
Computational aspects in the interpretation of geological formations

Period	Obligations	
04/15/76-04/14/78	FY77: $60,000	TOTAL: $126,272
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinstein, M.	HQ-RE/Gevarter, W. B.	49-Engr, NEC
Purbrick, J.	JPL/Whitney, W.	
Winston, P. H.		

NSG 7273 **Massachusetts Institute of Technology** **2485**
Mineralogy of the surfaces of Mercury and Mars

Period	Obligations	
10/01/76-09/30/77	FY77: $38,950	TOTAL: $38,950
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCord, T. B.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NSG 7297 **Massachusetts Institute of Technology** **2486**
Studies of stress history of terrestrial lithospheres

Period	Obligations	
01/01/77-12/31/77	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Solomon, S. C.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NSG 7328 **Massachusetts Institute of Technology** **2487**
Research on integrated silicon balometers

Period	Obligations	
03/01/77-02/28/78	FY77: $55,500	TOTAL: $55,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weiss, R.	HQ-SA/Boggess, N. W.	11-Astronomy

NSG 7329 **Massachusetts Institute of Technology** **2488**
Application of lunar laser ranging data to a study of plate tectonic driving forces

Period	Obligations	
04/01/77-03/31/78	FY77: $65,820	TOTAL: $65,820
Prin Invest	*NASA Tech Officer*	*CASE Category*
Solomon, S. C.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7331 **Massachusetts Institute of Technology** **2489**
Crystal growth of device quality gallium arsenite in space

Period	Obligations	
04/01/79-03/31/80	FY77: $500,000	TOTAL: $500,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gatos, H. C.	HQ-P/Vitale, J. V.	31-Atmos Sci

NSG 7338 **Massachusetts Institute of Technology** **2490**
Temperature dependencies of electronic transition energies of healed lunar materials

Period	Obligations	
03/01/77-09/30/78	FY77: $40,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burns, R. G.	HQ-SL/Quaide, W. L.	32-Geological Sci

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MASSACHUSETTS (Continued)

NSG 7339 **Massachusetts Institute of Technology** **2491**
X-ray balloon observations from the Northern and Southern Hemispheres

Period	Obligations	
04/01/77-03/31/78	FY77 $80,000	TOTAL $80,000
Prin Invest	NASA Tech Officer	CASE Category
Lewin, W G	HQ-SA/Sofia, S	11-Astronomy
	HQ-SA/Opp, A G	

NSG 9057 **Massachusetts Institute of Technology** **2492**
Magnetic parallels Lunar, meteoritic, and terrestrial rocks

Period	Obligations	
02/01/77-07/31/78	FY77 $34,950	TOTAL $34,950
Prin Invest	NASA Tech Officer	CASE Category
Brecher, A	JSC/Harris, J W	32-Geological Sci

NSG 2156 **Tufts University** **2493**
Study of pilot controller interaction under various simulated advanced ATC and navigation concepts

Period	Obligations	
06/01/76-08/31/78	FY77 $94,656	TOTAL $142,554
Prin Invest	NASA Tech Officer	CASE Category
Kreifeldt, J G	ARC/Wempe, T F	99-Multi-Discip

NSG 9046 **Tufts University** **2494**
Investigation of atraumatic techniques for monitoring cardiovascular status and conditioning

Period	Obligations	
10/01/76-12/31/77	FY77 $30,000	TOTAL $30,000
Prin Invest	NASA Tech Officer	CASE Category
Spodick, D H	JSC/Jackson, M M	53-Other Medical

NSG 1295 **University of Lowell** **2495**
Structural response and input dentification

Period	Obligations	
04/01/76-03/31/78	FY77 $29,974	TOTAL $58,853
Prin Invest	NASA Tech Officer	CASE Category
McElman, J A	LARC/Fralich, R W.	41-Aero Engr
OCallahan, J C	LARC/Pinson, L D.	
Shepard, G D		

NAS 2-9129 **University of Massachusetts - Amherst** **2496**
Interdisciplinary scientist and radar team member

Period	Obligations	
01/22/76-09/30/78	FY77 $10,920	TOTAL $16,456
Prin Invest	NASA Tech Officer	CASE Category
McGill, G E	ARC/Hall, C F	11-Astronomy
	ARC/Porter, D L	

NGL 22-010-023 **University of Massachusetts - Amherst** **2497**
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres

Period	Obligations	
05/24/67-08/31/79	FY77	TOTAL $408,999
Prin Invest	NASA Tech Officer	CASE Category
Irvine, W M	HQ-SL/Brunk, W E	11-Astronomy
	HQ-SL/Fellows, R E	

NGL 22-010-025 **University of Massachusetts - Amherst** **2498**
Study of solar chromosphere from balloon altitudes

Period	Obligations	
10/24/67-12/31/77	FY77 $3,000	TOTAL $588,082
Prin Invest	NASA Tech Officer	CASE Category
Strong, J	HQ-ST/Timothy, A F	11-Astronomy

NGL 22-010-089 **University of Massachusetts - Amherst** **2499**
Lunar sample analysis

Period	Obligations	
03/16/71-01/31/78	FY77 $41,500	TOTAL $128,175
Prin Invest	NASA Tech Officer	CASE Category
Haggerty, S E	JSC/Harris, J W	13-Physics

NGR 22-010-076 **University of Massachusetts - Amherst** **2500**
Reconnaissance study of large geologic ring structures on Mars

Period	Obligations	
05/19/70-12/01/77	FY77 $42,050	TOTAL $178,054
Prin Invest	NASA Tech Officer	CASE Category
McGill, G E	HQ-SL/Dwornik, S E	32-Geological Sci
	HQ-SL/Wahmann, R	

NAS 5-23520 **Williams College** **2501**
Study of improvement of hydrogen maser frequency standard

Period	Obligations	
07/01/76-09/30/77	FY77	TOTAL $35,500
Prin Invest	NASA Tech Officer	CASE Category
Crampton, S B	GSFC/Reinhardt, V S	13-Physics

NSG 3137 **Worcester Polytechnic Institute** **2502**
Investigation of the 1 15 micron photoconductive response of silicon devices

Period	Obligations	
02/01/77-01/31/78	FY77 $43,394	TOTAL $43,394
Prin Invest	NASA Tech Officer	CASE Category
Lanyon, H P.	LERC/Godlewski, M P	45-Elec Engr
	LERC/Brandhorst, H W , Jr	

NSG 7154 **Worcester Polytechnic Institute** **2503**
Mission-oriented studies of planetary biology

Period	Obligations	
10/01/75-09/30/77	FY77 $100,000	TOTAL $236,590
Prin Invest	NASA Tech Officer	CASE Category
Daniell, J F	HQ-SB/Young, R S	51-Biology

MICHIGAN

NAS 1-6860 **Michigan State University** **2504**
Beam time on 48 MeV accelerators

Period	Obligations	
11/01/67-11/01/77	FY77	TOTAL $6,840
Prin Invest	NASA Tech Officer	CASE Category
Unavailable	LARC/Unavailable	13-Physics

NGL 23-004-083 **Michigan State University** **2505**
Use of remote sensing for land use policy formulation

Period	Obligations	
06/08/72-05/31/80	FY77: $110,000	TOTAL: $770,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Boylan, M. G.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NGR 23-004-091 **Michigan State University** **2506**
A study of structure of a large angle oblique jet impingement flow

Period	Obligations	
11/01/73-07/08/78	FY77: $23,250	TOTAL: $83,248
Prin Invest	*NASA Tech Officer*	*CASE Category*
Foss, J. F.	LARC/Hardin, J. C.	41-Aero Engr

NSG 3101 **Michigan State University** **2507**
Measurements of mixed mode crack surface displacements and comparisons with theory

Period	Obligations	
03/15/76-06/30/77	FY77:	TOTAL: $17,708
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sharp, W. N., Jr. Altiero, N. J., Jr.	LERC/Orange, T. W.	49-Engr, NEC

NSG 7293 **Michigan State University** **2508**
Radiative fluid dynamic studies of the sun and compact H II regions

Period	Obligations	
10/01/76-09/30/77	FY77: $15,000	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stein, R. F.	HQ-ST/Timothy, A. F.	13-Physics

NAS 1-14394 **University of Michigan - Ann Arbor** **2509**
Science support for the limb infrared monitor of the stratosphere experiment

Period	Obligations	
04/09/76-10/31/78	FY77: $3,000	TOTAL: $31,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Drayson, S. R.	LARC/Russell, J. M., III LARC/James, R. L., Jr.	31-Atmos Sci

NAS 2-9126 **University of Michigan - Ann Arbor** **2510**
Interdisciplinary scientist, Pioneer/Venus program

Period	Obligations	
02/10/76-09/30/78	FY77: $39,946	TOTAL: $63,411
Prin Invest	*NASA Tech Officer*	*CASE Category*
Donahue, T. M.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy

NAS 2-9130 **University of Michigan - Ann Arbor** **2511**
Interdisciplinary scientist, Pioneer Venus program

Period	Obligations	
02/09/76-09/30/78	FY77: $35,000	TOTAL: $49,525
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nagy, A. F.	ARC/Hall, C. F. ARC/Porter, D. L.	11-Astronomy

NAS 2-9466 **University of Michigan - Ann Arbor** **2512**
Study of the effect of hypogravic and hypergravic stimuli on the human otolith system

Period	Obligations	
01/03/77-12/31/77	FY77: $27,250	TOTAL: $27,250
Prin Invest	*NASA Tech Officer*	*CASE Category*
Quartron, G. C.	ARC/Mehler, W. R.	51-Biology

NAS 3-20051 **University of Michigan - Ann Arbor** **2513**
Lightweight, low compression aircraft diesel engine

Period	Obligations	
06/30/76-06/29/77	FY77:	TOTAL: $121,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kroeger, R. A.	LERC/Ream, L. W.	46-Mech Engr

NAS 5-11376 **University of Michigan - Ann Arbor** **2514**
AE-C, D, & E Pelz experiment

Period	Obligations	
01/07/71-09/30/78	FY77: $44,658	TOTAL: $1,041,190
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	GSFC/Pelz, D.	31-Atmos Sci

NAS 5-11383 **University of Michigan - Ann Arbor** **2515**
AE-C, D, and E neutral temperature experiment

Period	Obligations	
02/03/71-09/30/78	FY77: $45,267	TOTAL: $1,011,298
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci

NAS 5-20622 **University of Michigan - Ann Arbor** **2516**
Nitric oxide detector

Period	Obligations	
06/18/74-11/30/76	FY77: $9,687	TOTAL: $342,428
Prin Invest	*NASA Tech Officer*	*CASE Category*
Horvath, J. J.	GSFC/Theon, J. S.	31-Atmos Sci

NAS 5-20939 **University of Michigan - Ann Arbor** **2517**
Laboratory tests and development of mass spectrometer subsystems

Period	Obligations	
02/13/75-06/30/78	FY77: $70,637	TOTAL: $197,682
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R. Kennedy, B. R.	GSFC/Cooley, J. L. GSFC/Niemann, H. B.	31-Atmos Sci

NAS 5-22587 **University of Michigan - Ann Arbor** **2518**
Pioneer/Venus electron temperature probe

Period	Obligations	
09/29/75-07/01/78	FY77: $30,932	TOTAL: $413,558
Prin Invest	*NASA Tech Officer*	*CASE Category*
Donahue, T. M. Nagy, A. F.	GSFC/Krehbiel, J. F. GSFC/Brace, L. H.	31-Atmos Sci

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NAS 5-22861 **University of Michigan - Ann Arbor** **2519**
Fabrication and test of high speed monolithic integrated pulse amplifier

Period	Obligations	
11/28/75-11/29/76	FY77: $21,602	TOTAL: $50,476
Prin Invest	*NASA Tech Officer*	*CASE Category*
MacNee, A. B.	GSFC/Way, S. H.	45-Elec Engr
Masnari, N. A.	GSFC/Cooley, J. E.	

NAS 5-22875 **University of Michigan - Ann Arbor** **2520**
Particle measurement systems

Period	Obligations	
12/04/75-11/03/77	FY77: $24,663	TOTAL: $60,795
Prin Invest	*NASA Tech Officer*	*CASE Category*
MacNee, A. B.	GSFC/Trainor, J. H.	13-Physics

NAS 5-23006 **University of Michigan - Ann Arbor** **2521**
Atmosphere Explorer visual airglow photometer

Period	Obligations	
08/24/71-09/30/78	FY77: $150,980	TOTAL: $1,343,585
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hays, P. B.	GSFC/Gustafson, C.	31-Atmos Sc.
Carignan, C.		

NAS 5-23230 **University of Michigan - Ann Arbor** **2522**
Program of aeronautical research utilizing thermosphere probe

Period	Obligations	
06/18/73-06/30/78	FY77:	TOTAL: $336,927
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	GSFC/Spencer, N. W.	31-Atmos Sci

NAS 5-23791 **University of Michigan - Ann Arbor** **2523**
Furnish model of Fabry-Perot interferometer

Period	Obligations	
10/04/76-03/02/77	FY77: $22,050	TOTAL: $22,050
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hays, P. B.	GSFC/Hoffman, R. A.	11-Astronomy

NAS 5-24135 **University of Michigan - Ann Arbor** **2524**
Design study for neutral atmosphere wind and temperature experiment

Period	Obligations	
04/22/77-10/22/77	FY77: $49,914	TOTAL: $49,914
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	GSFC/Spenser, N.	11-Astronomy

NAS 6-2794 **University of Michigan - Ann Arbor** **2525**
Design, fabricate and test five payloads

Period	Obligations	
10/15/76-10/15/78	FY77: $160,000	TOTAL: $160,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Horvath, J. J.	WFC/Rossi, L. C.	31-Atmos Sci
	WFC/Peppy, T. W., Jr.	

NAS 8-31987 **University of Michigan - Ann Arbor** **2526**
Mass spectrometer for induced environment contamination monitor

Period	Obligations	
04/30/76-11/29/79	FY77: $337,000	TOTAL: $425,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	MSFC/Ruff, R. C.	19-Phys Sci, NEC
Maurer, J. C.	MSFC/Naumann, R. J.	
Busch, T. A.		

NAS 8-32332 **University of Michigan - Ann Arbor** **2527**
Retarding ion mass spectrometer on the high altitude electrodynamic Explorer

Period	Obligations	
01/17/77-11/15/77	FY77: $14,976	TOTAL: $14,976
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	MSFC/Chappell, C. R.	
	MSFC/Lewter, B. J.	19-Phys Sci, NEC

NAS 8-32569 **University of Michigan - Ann A...** **2528**
Spacelab mission experiment 24, an imaging ... metric observatory for Spacelab 1

Period	Obligations	
04/15/77-10/14/77	FY77: $289,561	TOTAL: $289,561
Prin Invest	*NASA Tech Officer*	*CASE Category*
Torr, M. R.	MSFC/Jones, C. O.	19-Phys Sci, NEC

NAS 8-32661 **University of Michigan - Ann Arbor** **2529**
Spacelab outgassing

Period	Obligations	
09/20/77-01/19/81	FY77: $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carignan, G. R.	MSFC/Ruff, R. C.	39-Env Sci, NEC
	MSFC/Srriver, E. L.	

NAS 9-14609 **University of Michigan - Ann Arbor** **2530**
Development of an instrument payload for balloon rocket or aircraft

Period	Obligations	
05/01/75-12/31/77	FY77: $493,876	TOTAL: $1,393,876
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, J. G.	JSC/Koons, F. D.	31-Atmos Sci

NAS 9-15244 **University of Michigan - Ann Arbor** **2531**
Evaluations of postural mechanisms under dynamic conditions

Period	Obligations	
02/01/77-01/31/78	FY77: $29,271	TOTAL: $29,271
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D.	JSC/Homick, J. L.	53-Other Medical

NAS 9-15375 **University of Michigan - Ann Arbor** **2532**
Definition of Spacelab 1 experiment for adaptation of vestibulospinal reflex mechanisms during spaceflight

Period	Obligations	
06/01/77-12/01/77	FY77: $13,000	TOTAL: $13,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, D. J.	JSC/Homick, J. L.	59-Life Sci, NEC

NASW 3065 **University of Michigan - Ann Arbor** **2533**
Stratospheric specie measurements and techniques

Period	Obligations	
04/01/77-10/31/77	FY77: $284,704	TOTAL: $284,704
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, J. G.	HQ-SA/Tilford, S. G.	11-Astronomy

NGL 23-005-010 **University of Michigan - Ann Arbor** **2534**
Structural analysis of aircraft tires

Period	Obligations	
01/02/63-05/31/77	FY77:	TOTAL: $357,751
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clark, S. K.	LARC, McCarty, J. L.	41-Aero Engr

NGL 23-005-275 **University of Michigan - Ann Arbor** **2535**
Solar research program of McMath-Hulbert Observatory and improvement of photoheliographic telescope

Period	Obligations	
04/08/68-09/30/77	FY77: $65,000	TOTAL: $600,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mohler, O. C.	HQ-ST/Bohlin, D. J.	11-Astronomy

NGR 23-005-015 **University of Michigan - Ann Arbor** **2536**
Theoretical investigation of space charge waves in ionosphere and space plasma sheaths

Period	Obligations	
10/28/63-06/30/78	FY77: $250,262	TOTAL: $1,392,805
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nagy, A. F.	HQ-ST/Cauffman, D. P. HQ-ST/Schmerling, E. R.	31-Atmos Sci

NGR 23-005-094 **University of Michigan - Ann Arbor** **2537**
An investigation of plasma kinetics, with emphasis on the interaction between rarefied plasmas and moving bodies

Period	Obligations	
06/26/64-04/30/78	FY77: $33,925	TOTAL: $382,601
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liu, W. C.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NGR 23-005-320 **University of Michigan - Ann Arbor** **2538**
Theoretical and experimental studies of spacecraft space plasma interactions

Period	Obligations	
01/29/69-07/31/78	FY77: $55,000	TOTAL: $407,557
Prin Invest	*NASA Tech Officer*	*CASE Category*
Samir, U.	HQ-ST/King, J. H. HQ-ST/Schmerling, E. R.	13-Physics

NGR 23-005-360 **University of Michigan - Ann Arbor** **2539**
A program in aeronomy

Period	Obligations	
12/29/69-11/30/77	FY77: $180,000	TOTAL: $1,281,101
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sharp, W. E.	GSFC/Bissell, E. F.	13-Physics

NGR 23-005-464 **University of Michigan - Ann Arbor** **2540**
Optical studies of galactic X-ray sources

Period	Obligations	
03/02/71-02/28/78	FY77: $17,823	TOTAL: $108,450
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hiltner, W. A.	HQ-SA/Rosendhal, J. D. HQ-SA/Roman, N. G.	11-Astronomy

NGR 23-005-528 **University of Michigan - Ann Arbor** **2541**
Fiber-reinforced solids possessing great fracture toughness & the role of interfacial strength

Period	Obligations	
07/26/72-10/31/77	FY77: $4,900	TOTAL: $108,662
Prin Invest	*NASA Tech Officer*	*CASE Category*
Felbeck, D. K.	LARC/Fichter, W. B. LARC/Elber, W.	47-Materials Engr

NGR 23-005-536 **University of Michigan - Ann Arbor** **2542**
Research in ignition of metals, lubricants, and contaminants in oxygen-rich atmospheres

Period	Obligations	
07/01/72-08/31/77	FY77:	TOTAL: $120,401
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nicholls, J. A. Adamson, T. C., Jr.	LERC, Snod, T. L.	42-Astro Engr

NGR 23-005-540 **University of Michigan - Ann Arbor** **2543**
Experimental and theoretical study of sound from meteors

Period	Obligations	
01/07/72-02/28/78	FY77:	TOTAL: $131,109
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bartman, F. L.	HQ-SL/Donn, B. D. HQ-SL/Brunk, W. E.	31-Atmos Sci

NSG 1080 **University of Michigan - Ann Arbor** **2544**
Definition of tire properties for landing system analyses

Period	Obligations	
09/01/74-02/28/78	FY77:	TOTAL: $89,996
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clark, S. K.	LARC/McCarty, J. L. LARC/Tanner, J. A.	41-Aero Engr

NSG 1229 **University of Michigan - Ann Arbor** **2545**
Stall/spin program research

Period	Obligations	
08/07/75-09/30/77	FY77: $2,000	TOTAL: $18,697
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kroeger, R. A.	LARC/Stough, H. P., III	41-Aero Engr

NSG 1243 **University of Michigan - Ann Arbor** **2546**
Rain scavenging of solid rocket motor exhaust clouds

Period	Obligations	
10/01/75-09/30/78	FY77: $100,676	TOTAL: $151,261
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dingle, A. N.	LARC/Pellett, G. L.	31-Atmos Sci

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NSG 1306 **University of Michigan - Ann Arbor** **2547**
Models and techniques for evaluating the effectiveness of aircraft computing systems

Period	Obligations	
05/01/76-04/30/78	FY77. $69,043	TOTAL. $138,865
Prin Invest	*NASA Tech Officer*	*CASE Category*
Meyer, J. F	LARC/Bavuso, S. J.	45-Elec Engr

NSG 1326 **University of Michigan - Ann Arbor** **2548**
Study of shock boundary layer interaction in transonic flow

Period	Obligations	
08/01/76-01/31/78	FY77. $30,000	TOTAL $45,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sichel, M.	LARC/Czarnecki, K. R.	41-Aero Engr
Adamson, T. C., Jr		
Ssiter, M. E.		

NSG 1373 **University of Michigan - Ann Arbor** **2549**
Halogen occultation experiment: Phases I and II

Period	Obligations	
12/01/76-01/31/78	FY77. $44,264	TOTAL. $44,264
Prin Invest	*NASA Tech Officer*	*CASE Category*
Drayson, S. R.	LARC/Russell, J. M., III	31-Atmos Sci
Cicerone, R. J	LARC/Brockman, P	

NSG 1448 **University of Michigan - Ann Arbor** **2550**
Trajectories optimization in hypersonic flight

Period	Obligations	
09/01/77-08/31/78	FY77. $29,027	TOTAL. $29,027
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vinh, N. X.	LARC/Dunning, R. S.	41-Aero Engr
	LARC/Elliott, J. R.	

NSG 2018 **University of Michigan - Ann Arbor** **2551**
GRAD research aeronautics program

Period	Obligations	
04/01 74-12/31/77	FY77. $38,000	TOTAL. $194,762
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kroeger, R. A	ARC/Feistel, T. W	41-Aero Engr

NSG 2113 **University of Michigan - Ann Arbor** **2552**
Improvement of light aircraft propulsion efficiency

Period	Obligations	
10/01/75-12/31/77	FY77. $115,000	TOTAL. $221,750
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kroeger, R. A	ARC/Anderson, S. B	41-Aero Engr
Eagle, D		

NSG 2245 **University of Michigan - Ann Arbor** **2553**
Math modeling and computer mechanization for real time simulation of rotary-wing aircraft

Period	Obligations	
06/01/77-05/31/78	FY77. $75,000	TOTAL. $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Howe, R. M.	ARC/Howard, J. C	41-Aero Engr
Greenwood, D. T	ARC/Raby, J. S	
Fogarty, L. E.		

NSG 3148 **University of Michigan - Ann Arbor** **2554**
Fundamental aspects of gas turbine combustion

Period	Obligations	
05/01/77-04/30/78	FY77. $65,063	TOTAL: $65,063
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nicholls, J. A	LERC/Cooper, L. P.	41-Aero Engr

NSG 3161 **University of Michigan - Ann Arbor** **2555**
Ignition and combustion low compression ratio, high output diesel

Period	Obligations	
10/01/77-09/30/78	FY77. $84,953	TOTAL: $84,953
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bolt, J. A.	LERC/Beam, L. W	46-Mech Engr
Mirsky Sr, W	LERC/Wintucky, W. T.	

NSG 5097 **University of Michigan - Ann Arbor** **2556**
Measurement of hydrogen density in the atmosphere of the earth

Period	Obligations	
03/01/76-02/28/77	FY77.	TOTAL. $4,690
Prin Invest	*NASA Tech Officer*	*CASE Category*
Donahue, T. M.	GSFC/Kupperian, J. E., Jr.	
Atreya, S. A		11-Astronomy

NSG 5117 **University of Michigan - Ann Arbor** **2557**
Measurement of the H2 density near 100 km of earth's atmosphere

Period	Obligations	
06/01/76-05/31/77	FY77.	TOTAL. $12,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Donahue, T. M	GSFC/Kupperian, J. E., Jr.	
		11-Astronomy

NSG 5139 **University of Michigan - Ann Arbor** **2558**
Search for hot spots at the foot of IO-associated flux tube in Jupiter

Period	Obligations	
12/01/76-11/30/77	FY77. $4,440	TOTAL. $4,440
Prin Invest	*NASA Tech Officer*	*CASE Category*
Atreya, S. K	GSFC/Kupperian, J. E., Jr.	
		11-Astronomy

NSG 5171 **University of Michigan - Ann Arbor** **2559**
Studies of odd nitrogen in the mesosphere and lower thermosphere

Period	Obligations	
04/01/77-03/31/78	FY77. $30,000	TOTAL. $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rusch, D. W.	GSFC/Stolarski, R. S.	31-Atmos Sci

MICHIGAN (Continued)

NSG 5189 **University of Michigan - Ann Arbor** **2560**
Direct measurements of photolysis rates of stratospheric constituents

Period	Obligations	
08/01/77-07/31/78	FY77 $48,604	TOTAL $48,604
Prin Invest	NASA Tech Officer	CASE Category
Stedman, D H	GSFC/Reed, E I	31-Atmos Sci

NSG 5206 **University of Michigan - Ann Arbor** **2561**
Measurement of vertical distribution of stars

Period	Obligations	
09/01/77-08/31/78	FY77 $13,000	TOTAL $13,000
Prin Invest	NASA Tech Officer	CASE Category
Donahue, T M	GSFC/Kupperian, J E, Jr	11-Astronomy

NSG 7187 **University of Michigan - Ann Arbor** **2562**
Theoretical and numerical studies of stratospheric chemistry and radiation

Period	Obligations	
10/01/75-09/30/77	FY77 $57,500	TOTAL $107,570
Prin Invest	NASA Tech Officer	CASE Category
Cicerone, R J	HQ-SU/Tilford, S G	12-Chemistry
Liu, S C	HQ-SU/Reed, E I	

NSG 7209 **University of Michigan - Ann Arbor** **2563**
A program of stratospheric research

Period	Obligations	
01/01/76-09/31/77	FY77 $89,991	TOTAL $197,991
Prin Invest	NASA Tech Officer	CASE Category
Donahue, T M	HQ-SU/Tilford, S G	31-Atmos Sci
Cicerone, R J	HQ-SU/Seals, R K, Jr	
Liu, S C		

NSG 7279 **University of Michigan - Ann Arbor** **2564**
Analysis of OGO-6 photometer data

Period	Obligations	
09/01/76-08/31/77	FY77 $27,660	TOTAL $27,660
Prin Invest	NASA Tech Officer	CASE Category
Donahue, T M	HQ-SL/Fellows, R F	31-Atmos Sci
	HQ-SL/Brunk, W I	

NSG 7308 **University of Michigan - Ann Arbor** **2565**
The physical and chemical properties of the prebiotic atmosphere

Period	Obligations	
02/01/77-01/31/78	FY77 $24,146	TOTAL $24,146
Prin Invest	NASA Tech Officer	CASE Category
Kuhn, W R	HQ-SB/Getb, D S	31-Atmos Sci

NSG 9047 **University of Michigan - Ann Arbor** **2566**
Investigation of otoconial seeding, growth, maintenance and turnover

Period	Obligations	
11/01/76-10/31/77	FY77 $8,841	TOTAL $8,841
Prin Invest	NASA Tech Officer	CASE Category
Ross, M D	JSC/Hoffman, R A	51-Biology

NAS 8-29824 **Wayne State University** **2567**
Electrophoretic separation of proteins in space

Period	Obligations	
05/15/73-09/15/75	FY77	TOTAL $75,880
Prin Invest	NASA Tech Officer	CASE Category
Brown, R K	MSFC/Allen, R F, MSFC/Nerren, B H	47-Materials Engr

NSG 1330 **Wayne State University** **2568**
Analytical modeling of noise source in a moving jet

Period	Obligations	
08/17/76-10/31/77	FY77 $10,233	TOTAL $10,233
Prin Invest	NASA Tech Officer	CASE Category
Chow, P T	LARC/Liu, C H	41-Aero Engr

NSG 2008 **Wayne State University** **2569**
Mathematical models of in vivo measurement of human ulnar strength

Period	Obligations	
02/01/74-12/01/77	FY77 $11,052	TOTAL $61,000
Prin Invest	NASA Tech Officer	CASE Category
Orne, D	ARC/Young, D R	53-Other Medical

NSG 3035 **Wayne State University** **2570**
Laser power research

Period	Obligations	
09/03/74-03/02/77	FY77	TOTAL $11,780
Prin Invest	NASA Tech Officer	CASE Category
Yu, T T	LERC/Dunning, J W, Jr	45-Elec Engr

NSG 3081 **Wayne State University** **2571**
Solar energy research

Period	Obligations	
09/15/75-03/14/77	FY77	TOTAL $11,673
Prin Invest	NASA Tech Officer	CASE Category
Wang, T Y	LERC/Brandhorst, H W, Jr, LERC/Bernatowicz, D T	13-Physics

MINNESOTA

NAS 5-23557 **Concordia College in Moorhead** **2572**
Post flight calibration study on the lunar ejecta and meteorite experiment

Period	Obligations	
06/14/76-06/01/77	FY77 $7,932	TOTAL $38,012
Prin Invest	NASA Tech Officer	CASE Category
Bailey, C T, Erantsvog, D J	GSFC/Berg, O E	11-Astronomy

NAS 1-9697 Univ of Minnesota - Minneapolis-St Paul 2573
Participation in the science planning for the Viking 1975 missions in the area of entry science

Period	Obligations	
03/20/70-09/30/77	FY77 $42,105	TOTAL $422,293
Prin Invest	NASA Tech Officer	CASE Category
Nier, A O.	LARC/Williams, T S, Jr LARC/Glenny, W R	99-Multi-Discip

NAS 2-8812 Univ of Minnesota - Minneapolis-St Paul 2574
Design and development of the bus neutral mass spectrometer

Period	Obligations	
06/17/75-11/30/78	FY77 $5,000	TOTAL $23,000
Prin Invest	NASA Tech Officer	CASE Category
Nier, A O Mauersberger, K.	ARC/Thorley, G W. ARC/Sperans, J.	31-Atmos Sci

NAS 5-11310 Univ of Minnesota - Minneapolis-St Paul 2575
Ac electric fields experiment Helios

Period	Obligations	
06/29/70-02/01/79	FY77 $193,000	TOTAL $1,471,555
Prin Invest	NASA Tech Officer	CASE Category
Kellogg, P J Hamermesh, M	GSFC/Gemmell, J	11-Astronomy

NAS 5-11438 Univ of Minnesota - Minneapolis-St Paul 2576
Open source neutral mass spectrometers for AE spacecraft, missions C, D, & E

Period	Obligation	
06/15/71-09/30/78	FY77 $125,000	TOTAL $1,179,731
Prin Invest	NASA Tech Officer	CASE Category
Nier, A O	GSFC/Spencer, N W GSFC/Kupperian, J E, Jr	31-Atmos Sci

NAS 5-11687 Univ of Minnesota - Minneapolis-St Paul 2577
Study of particle acceleration mechanisms for the ATS-F

Period	Obligations	
05/21/69-03/15/77	FY77 $36,665	TOTAL $794,727
Prin Invest	NASA Tech Officer	CASE Category
Winckler, J R.	GSFC/Corrigan, J. P	49-Engr, NEC

NAS 5-20837 Univ of Minnesota - Minneapolis-St Paul 2578
Data reduction and analysis of electro-magnetic field of IMP I

Period	Obligations	
02/20/75-06/30/77	FY77	TOTAL $60,000
Prin Invest	NASA Tech Officer	CASE Category
Kellogg, P J	GSFC/Davis, M A	13-Physics

NAS 5-23684 Univ of Minnesota - Minneapolis-St Paul 2579
Experiment definition and integration study of adapting a present cosmic ray detector for spacelab

Period	Obligations	
08/05/76-12/17/76	FY77	TOTAL $24,000
Prin Invest	NASA Tech Officer	CASE Category
Waddington, C J	GSFC/Barrowman, J S	11-Astronomy

NAS 5-23703 Univ of Minnesota - Minneapolis-St Paul 2580
ATS-6 environmental measurements experiment data reduction and analysis

Period	Obligations	
11/15/76-10/30/77	FY77 $73,335	TOTAL $73,335
Prin Invest	NASA Tech Officer	CASE Category
Winckler, J. R	GSFC/Corrigan, J. P.	31-Atmos Sci

NAS 8-27977 Univ of Minnesota - Minneapolis-St Paul 2581
Design, development, & operation of Cerenkov portion of the ACR-7 heavy nuclei experiment under the HEAO program

Period	Obligations	
06/16/72-07/15/80	FY77 $373,000	TOTAL $1,110,000
Prin Invest	NASA Tech Officer	CASE Category
Waddington, C. J.	MSFC/Krome, H. O. MSFC/Cochran, J.	11-Astronomy

NAS 8-31510 Univ of Minnesota - Minneapolis-St Paul 2582
Study of electron accelerator experiments using subsatellites as detectors

Period	Obligations	
07/01/75-06/30/77	FY77	TOTAL $25,015
Prin Invest	NASA Tech Officer	CASE Category
Winckler, J. R. Hendrickson, R	MSFC/Roberts, W T MSFC/Chappell, C R	13-Physics

NAS 9-12560 Univ of Minnesota - Minneapolis-St Paul 2583
Storage stability & improvement of intermediate moisture foods

Period	Obligations	
03/23/72-12/31/77	FY77 $20,000	TOTAL $265,000
Prin Invest	NASA Tech Officer	CASE Category
LaBuza, T P	JSC/Smith, M C, Jr	59-Life Sci, NEC

NGT 24-005-008 Univ of Minnesota - Minneapolis-St Paul 2584
Analytic and experimental research in space physics including balloon and rocket flight experiments

Period	Obligations	
08/20/62-06/30/77	FY77	TOTAL $4,196,132
Prin Invest	NASA Tech Officer	CASE Category
Winckler, J R	HQ-ST/Cauffman, D P	13-Physics

NGL 24-005-009 Univ of Minnesota - Minneapolis-St Paul 2585
Development and application of mass spectrometers to studies of earths upper atmosphere and planetary atmospheres

Period	Obligations	
08/01/62-06/30/79	FY77	TOTAL $1,507,479
Prin Invest	NASA Tech Officer	CASE Category
Nier, A O	HQ-SL/Fellows, R F HQ-SL/Brunk, W F	31-Atmos Sci

NGL 24-005-160 Univ of Minnesota - Minneapolis-St Paul 2586
Investigation of environmental microbiology as related to planetary quarantine

Period	Obligations	
06/13/68-05/31/76	FY77	TOTAL $1,245,006
Prin Invest	NASA Tech Officer	CASE Category
Straub, C P	HQ-SB/Young, R S HQ-SL/Gallagher, S G	51-Biology

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NGL 24-005-225 Univ of Minnesota - Minneapolis-St Paul 2587
Lunar sample analysis

Period	Obligations	
01/26/71-01/31/78	FY77 $50,977	TOTAL $597,080

Prin Invest	NASA Tech Officer	CASE Category
Alexander, E C, Jr.	JSC/Harris, J W	13-Physics

NGL 24-005-263 Univ of Minnesota - Minneapolis-St Paul 2588
Study of Minnesota forests and lakes using data from Earth Resources Technology Satellites

Period	Obligations	
07/06/72-06/30/80	FY77 $90,000	TOTAL $430,000

Prin Invest	NASA Tech Officer	CASE Category
Shepherd, W. G.	HQ-P/Vitale, J A.	39-Env Sci, NEC

NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 2589
Measurement of the gamma ray flux of various celestial point sources from high altitude balloons

Period	Obligations	
04/21/65-06/30/78	FY77 $68,000	TOTAL $798,887

Prin Invest	NASA Tech Officer	CASE Category
Waddington, C J	HQ-SA/Sofia, S	11-Astronomy
Freier, P S	HQ-SA/Opp, A. G.	

NGR 24-005-223 Univ of Minnesota - Minneapolis-St Paul 2590
Lunar sample analysis

Period	Obligations	
05/22/71-01/31/78	FY77 $112,000	TOTAL $537,175

Prin Invest	NASA Tech Officer	CASE Category
Murthy, V. R	JSC/Harris, J W	13-Physics

NGR 24-005-248 Univ of Minnesota - Minneapolis-St Paul 2591
Lunar sample analysis

Period	Obligations	
08/03/71-01/31/78	FY77 $60,000	TOTAL $372,045

Prin Invest	NASA Tech Officer	CASE Category
Banerjee, S K.	JSC/Harris, J W	32-Geological Sci

NGT 24-005-078 Univ of Minnesota - Minneapolis-St Paul 2592
Training of predoctoral graduate students in space sciences and technology

Period	Obligations	
06/24/65-08/01/78	FY77	TOTAL $18,298

Prin Invest	NASA Tech Officer	CASE Category
Anderson, G W.	HQ-P/Carter, C. H	99-Multi-Disctp

NSG 1431 Univ of Minnesota - Minneapolis-St Paul 2593
Neutral constituent measurements in the stratosphere

Period	Obligations	
07/01/77-06/30/78	FY77 $112,463	TOTAL $112,463

Prin Invest	NASA Tech Officer	CASE Category
Mauersberger, K	LARC/Beswick, A G.	31-Atmos Sci

NSG 2014 Univ of Minnesota - Minneapolis-St Paul 2594
Exploratory astrophysics and infrared astronomy

Period	Obligations	
02/01/74-02/28/78	FY77 $70,000	TOTAL $150,000

Prin Invest	NASA Tech Officer	CASE Category
Wells, W R	HQ-SA/Boggess, N W HQ-SA/Roman, N G	11-Astronomy

NSG 3041 Univ of Minnesota - Minneapolis-St Paul 2595
Ion beam sputter etch and deposition study

Period	Obligations	
01/01/75-01/01/78	FY77 $35,000	TOTAL $134,385

Prin Invest	NASA Tech Officer	CASE Category
Wehner, G K.	LERC/Sovey, J S LERC/Terdan, F. F	13-Physics

NSG 3094 Univ of Minnesota - Minneapolis-St Paul 2596
Investigations of negative and positive cesium ion species

Period	Obligations	
02/01/76-04/31/78	FY77 $42,000	TOTAL $92,350

Prin Invest	NASA Tech Officer	CASE Category
Chanin, L M.	LERC/Morris, J F	19-Phys Sci, NEC

NSG 5088 Univ of Minnesota - Minneapolis-St Paul 2597
Magnetospheric physics phenomena using sounding rockets

Period	Obligations	
11/01/75-11/30/77	FY77 $100,000	TOTAL $199,627

Prin Invest	NASA Tech Officer	CASE Category
Winckler, J R	GSFC/Bissell, F I HQ-ST/Cauffman, D P	13-Physics

NSG 6005 Univ of Minnesota - Minneapolis-St Paul 2598
Investigations of electrical currents in the auroral ionosphere

Period	Obligations	
10/01/75-09/30/78	FY77 $99,000	TOTAL $194,000

Prin Invest	NASA Tech Officer	CASE Category
Arnoldy, R J	WFC/Ballance, C W, Jr	
Cahill, L J, Jr	WFC/Gray, J W	19-Phys Sci, NEC

NSG 6009 Univ of Minnesota - Minneapolis-St Paul 2599
Study of neutral composition of upper atmosphere with rocket-borne mass spectrometers

Period	Obligations	
07/01/75-12/31/77	FY77	TOTAL $26,000

Prin Invest	NASA Tech Officer	CASE Category
Nier, A O	WFC/Ballance, C W, Jr	19-Phys Sci, NEC

NSG 7005 Univ of Minnesota - Minneapolis-St Paul 2600
Energetic particles in the magnetosphere and space

Period	Obligations	
07/01/73-06/30/79	FY77 $140,000	TOTAL $662,000

Prin Invest	NASA Tech Officer	CASE Category
London, J	HQ-ST/Cauffman, D P HQ-ST/Schmerling, E R	39-Env Sci, NEC

MINNESOTA (Continued)

NSG 7108 **Univ of Minnesota - Minneapolis-St Paul** **2601**
Research of waves and fields in plasma

Period	Obligations	
12/01/74-06/30/77	FY77:	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kellogg, P. J.	HQ-ST/Taylor, W. L.	19-Phys Sci, NEC

NSG 7221 **Univ of Minnesota - Minneapolis-St Paul** **2602**
Neutral constituent measurements in stratosphere

Period	Obligations	
03/16/76-11/30/78	FY77: $19,861	TOTAL: $63,243
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mauersberger, K.	HQ-SU/Seals, R. K., Jr	31-Atmos Sci
Nier, A. O.	HQ-SU/Tilford, S. G.	

NSG 7237 **Univ of Minnesota - Minneapolis-St Paul** **2603**
Interpretation of data obtained with the Explorer spacecraft with major objective of understanding magnetic storms

Period	Obligations	
06/01/76-05/31/77	FY77:	TOTAL: $37,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cahill, L. J., Jr.	HQ-ST/Cauffman, D. P.	19-Phys Sci, NEC
	HQ-ST/Schmerling, E. R.	

NSG 7259 **Univ of Minnesota - Minneapolis-St Paul** **2604**
Ultraviolet observations of SO galaxies

Period	Obligations	
08/01/76-01/31/78	FY77	TOTAL: $1,861
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gallagher, J. S.	HQ-SA/Roman, N. G.	11-Astronomy
	HQ-SA/Rosendhal, J. D.	

NSG 7296 **Univ of Minnesota - Minneapolis-St Paul** **2605**
Triaxial drop shapes rotating and charged liquid drops

Period	Obligations	
12/15/76-12/14/77	FY77: $28,900	TOTAL: $28,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Scriven, L. E.	HQ-RR/Lundholm, J. G., Jr.	13-Physics

NSG 9050 **Univ of Minnesota - Minneapolis-St Paul** **2606**
Petrologic study of returned lunar samples

Period	Obligations	
02/01/77-01/31/78	FY77: $37,300	TOTAL: $37,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weiblen, P. W.	JSC/Harris, J. W.	32-Geological Sci

NSR 24-005-245 **Univ of Minnesota - Minneapolis-St Paul** **2607**
Study of the proper motion of stars using the automated proper motion system

Period	Obligations	
01/13/72-12/31/77	FY77:	TOTAL: $238,329
Prin Invest	*NASA Tech Officer*	*CASE Category*
Luyten, W. J.	HQ-SA/Roman, N. G.	11-Astronomy
	GSFC/Mead, J. M.	

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NGR 25-012-001 **Alcorn State University** **2608**
Radio tracking of geostationary satellites

Period	Obligations	
09/01/73-01/31/78	FY77: $29,388	TOTAL: $155,617
Prin Invest	*NASA Tech Officer*	*CASE Category*
Paul, M. P.	GSFC/Schmid, P. E.	31-Atmos Sci

NSG 8036 **Alcorn State University** **2609**
Bio-gas production from alligator weeds

Period	Obligations	
06/01/76-09/01/78	FY77: $22,132	TOTAL: $43,029
Prin Invest	*NASA Tech Officer*	*CASE Category*
Latif, A.	MSFC/Kent, M. I.	51-Biology
	NSTL/Wolverton, B. C.	

NSG 3004 **Jackson State University** **2610**
Numerical solution of Navier-Stokes equations for steady laminar incompressible flow between two plates with abrupt change of spacings

Period	Obligations	
03/01/74-05/31/78	FY77: $26,497	TOTAL: $93,183
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chu, C. S.	LERC/Anderson, W. J.	49-Engr, NEC
	HQ-R/Zuk, J.	

NSG 8026 **Jackson State University** **2611**
Aquatic plants as filtration systems for chlorinated hydrocarbons

Period	Obligations	
06/01/75-05/31/78	FY77: $26,788	TOTAL: $76,089
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shore, F.	MSFC/Kent, M. I.	39-Env Sci, NEC
	NSTL/Wolverton, B. C.	

NSG 9016 **Jackson State University** **2612**
Research in marshland ecology

Period	Obligations	
08/15/74-05/31/78	FY77: $25,000	TOTAL: $73,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nelson, F. R.	NSTL/Joyce, A. T.	39-Env Sci, NEC

NAS 8-26749 **Mississippi State University** **2613**
A study of trends and techniques for space base electronics

Period	Obligations	
01/12/71-02/11/78	FY77: $30,000	TOTAL: $140,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gassaway, J. D.	MSFC, Routh, D. E.	13-Physics

NAS 8-30618 **Mississippi State University** **2614**
Fabrication of thermo-plastic hologram storage devices

Period	Obligations	
03/15/74-12/15/78	FY77	TOTAL: $15,979
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rogers, T. W.	MSFC/Pitts, F. H.	45-Elec Engr

NAS 8-31373 **Mississippi State University** **2615**
Study of digital holographic filter generation

Period	Obligations	
03/20/75-08/31/78	FY77:	TOTAL $20,024
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ingels, F M	MSFC/Wallace, G R	45-Elec Engr
	MSFC/McDonough, G. F.	

NAS 8-31568 **Mississippi State University** **2616**
Damping techniques for all modes in an automated control system

Period	Obligations	
08/25/75-08/24/77	FY77:	TOTAL $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mitchell, G	MSFC/Darden, J. H.	41-Aero Engr
	MSFC/Mink, H. J	

NAS 8-31770 **Mississippi State University** **2617**
Heat shield model fluctuating pressure test and full scale design requirements

Period	Obligations	
12/15/75-03/31/77	FY77	TOTAL $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shepard, W S.	MSFC/Clever, W W	41-Aero Engr

NAS 8-32214 **Mississippi State University** **2618**
Nucleonic coal detector

Period	Obligations	
09/15/76-06/14/77	FY77:	TOTAL $11,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jones, F W	MSFC/Rose, S	46-Mech Engr
	MSFC/Campbell, R. A.	

NCA 8-107 **Mississippi State University** **2619**
A study of the fracture mechanics properties of ceramic materials

Period	Obligations	
03/10/75-03/09/76	FY77	TOTAL $13,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hall, W B	MSFC/King, H. M	47-Materials Engr

NGL 25-001-054 **Mississippi State University** **2620**
Application of remotely sensed data to state and regional problems

Period	Obligations	
11/01/73-10/31/79	FY77. $98,167	TOTAL $500,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Miller, W F	HQ-P/Vitale, J A	39-Env Sci, NEC

NGR 25-001-055 **Mississippi State University** **2621**
Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multi-element airfoils

Period	Obligations	
01/01/74-02/28/78	FY77 $29,530	TOTAL $115,621
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thompson, J F	LARC/Bobbitt, P J	41-Aero Engr
	LARC/Newman, P A	

NSG 1083 **Mississippi State University** **2622**
An exploratory investigation of the cooling drag associated with general aviation propulsive systems

Period	Obligations	
09/01/74-08/31/78	FY77 $65,000	TOTAL $225,959
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cross, E. J., Jr.	LARC/Hall, A. W	41-Aero Engr
Miley, S. J.		

NSG 1242 **Mississippi State University** **2623**
Automatic mesh refinement for numerical solution of flows with strong shocks

Period	Obligations	
10/01/75-09/30/77	FY77	TOTAL $44,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thompson, J F	LARC/Weilmuenster, K. J	
Warsi, Z U		21-Mathematics

NSG 1249 **Mississippi State University** **2624**
Flight test of a wing stall sensor and evaluation of its application to an aircraft stall deterrent system

Period	Obligations	
09/15/75-12/31/77	FY77 $50,000	TOTAL $80,530
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bennett, A G., Jr	LARC/Harris, R E	41-Aero Engr
Owens, J K		

NSG 1284 **Mississippi State University** **2625**
An investigation of handling qualities of current sailplanes

Period	Obligations	
02/15/76-08/14/77	FY77	TOTAL $25,567
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bennett, A G., Jr	LARC/Gera, J	41 Aero Engr

NSG 1375 **Mississippi State University** **2626**
Processing air quality data

Period	Obligations	
01/01/77-12/31/77	FY77 $19,240	TOTAL $19,240
Prin Invest	*NASA Tech Officer*	*CASE Category*
Butler, C M	LARC Hogge, J E	22-Computer Sci

NSG 1402 **Mississippi State University** **2627**
Propeller propulsion integration

Period	Obligations	
04/01/77-11/31/77	FY77 $19,874	TOTAL $19,874
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cross, E J, Jr	LARC/McLemore, H C	41-Aero Engr
Miley, S J		

NSG 1454 **Mississippi State University** **2628**
Investigation of a flight test method for determining airplane drag utilizing a propeller wake survey rake

Period	Obligations	
09/01/77-11/30/77	FY77 $13,622	TOTAL $13,622
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cross, E J, Jr	LARC/Judd, J H	41-Aero Engr
Miley, S J		

MISSISSIPPI (Continued)

NSG 3111 **Mississippi State University** **2629**
Analysis of pressurized gas squeeze film

Period	Obligations	
07/01/76-06/30/77	FY77	TOTAL $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stiffler, A. K.	LERC/Fleming, D. P. LERC/Cunningham, R. E.	46-Mech Engr

NSG 8009 **Mississippi Valley State Univ** **2630**
Biological indicators for monitoring the water quality of MTF canals system

Period	Obligations	
04/25/74-06/25/76	FY77	TOTAL $44,521
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sethi, S. L.	MSFC/Wolverton, B. C. MSFC/Kent, M. L.	51-Biology

NAS 3-19431 **University of Mississippi - University** **2631**
Study of atomosphere absorption of high frequency noise

Period	Obligations	
04/21/75-06/20/76	FY77	TOTAL $128,269
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shields, F. D. Bass, H. E.	LERC/Gutierrez, O. A.	41-Aero Engr

NAS 8-32218 **University of Mississippi - University** **2632**
Planning for a center for information, education and technology development in remote sensing

Period	Obligations	
12/01/76-09/30/77	FY77 $8,795	TOTAL $8,795
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walsh, D. E. Minshew, V. H.	MSFC/Paludan, C. T. MSFC/Downs, S. W., Jr.	32-Geological Sci

NAS13-23 **University of Southern Mississippi** **2633**
Water hyacinths study

Period	Obligations	
10/20/75-10/21/76	FY77	TOTAL $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wolverton, V. C.	NSTL/Stecks, P.	51-Biology

NAS13-54 **University of Southern Mississippi** **2634**
Effects of water hyacinth substances upon the growth of yeast of the genus candida

Period	Obligations	
01/14/77-10/14/77	FY77 $5,000	TOTAL $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stocks, P.	NSTL/Wolverton, B. C.	51-Biology

NSG 1380 **University of Southern Mississippi** **2635**
Development of a method for deconvolution of gas chromatographic data

Period	Obligations	
02/01/77-01/31/78	FY77 $4,995	TOTAL $4,995
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rayborn, G. H.	LARC/Wood, G. M.	13-Physics

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NGR 26-006-039 **Saint Louis University** **2636**
Evaluation of cutaneous sensitivity

Period	Obligations	
08/23/71-12/31/77	FY77	TOTAL $33,091
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanBeaumont, W.	ARC/Greenleaf, J. E.	53-Other Medical

NSG 2023 **Saint Louis University** **2637**
Monitoring of local sweating response with the onset of motion sickness

Period	Obligations	
05/01/74-11/30/77	FY77	TOTAL $17,671
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanBeaumont, W.	MSFC/Greenleaf, J.	53-Other Medical

NAS 5-20818 **University of Missouri - Columbia** **2638**
Applications of airborne lidar measurement study

Period	Obligations	
01/29/75-02/15/77	FY77 $5,510	TOTAL $60,096
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schuster, B. G.	GSFC/Curran, R. J.	31-Atmos Sci

NAS 8-31150 **University of Missouri - Columbia** **2639**
Research study of microphysical processes in atmospheric clouds

Period	Obligations	
02/11/75-12/15/77	FY77	TOTAL $66,488
Prin Invest	*NASA Tech Officer*	*CASE Category*
Plummer, P. L. Hale, B. N.	MSFC/Smith, R. E. MSFC/Hill, C. K.	31-Atmos Sci

NAS 8-31767 **University of Missouri - Columbia** **2640**
Application transfer activity in Missouri

Period	Obligations	
01/05/76-04/04/78	FY77 $18,000	TOTAL $44,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barr, P. J. Johannsen, C. J.	MSFC/Paludan, C. T. MSFC/Daniels, J. L., Jr.	39-Env Sci, NEC

NAS 8-31849 **University of Missouri - Columbia** **2641**
Cloud physics laboratory science simulator

Period	Obligations	
04/29/76-10/15/78	FY77 $91,023	TOTAL $239,958
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kassner, J. L. Dunipace, K.	MSFC/Smith, R. E. MSFC/Anderson, B. J.	31-Atmos Sci

NGL 26-004-021 **University of Missouri - Columbia** **2642**
Effects of radiation on gastro-intestinal function and cyclic turnover of intestinal epithelium

Period	Obligations	
07/13/65-10/01/77	FY77	TOTAL $353,764
Prin Invest	*NASA Tech Officer*	*CASE Category*
Musacchia, X. J.	ARC/Holton, E. M.	51-Biology

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NSG 2191 **University of Missouri - Columbia** **2643**
Renal function, water and electrolyte balance, and intestinal transport in hypokinetic animals

Period *Obligations*
10/01/76-12/01/77 FY77 $30,000 TOTAL $30,000
Prin Invest *NASA Tech Officer* *CASE Category*
Musacchia, X. J ARC/Holton, E. M. 51-Biology

NSG 2193 **University of Missouri - Columbia** **2644**
Electrochemical carbon oxide concentration using molten-salt electrolytes

Period *Obligations*
11/01/76-11/01/77 FY77 $25,000 TOTAL $25,000
Prin Invest *NASA Tech Officer* *CASE Category*
Winnick, J. ARC/Quattrone, P. D 59-Life Sci, NEC

NAS 8-31538 **University of Missouri - Rolla** **2645**
Preliminary aerosol generator design studies

Period *Obligations*
06/09/75-07/31/76 FY77 TOTAL $27,389
Prin Invest *NASA Tech Officer* *CASE Category*
Stampfer, J. F., Jr MSFC/Smith, R. E 13-Physics
MSFC/Schrick, B. J

NAS 9-14848 **University of Missouri - Rolla** **2646**
Development and verification of simulation models for analyzing orbiter digital communication and data links and onboard monitoring parameter correlations

Period *Obligations*
01/01/76-11/30/77 FY77 TOTAL $29,600
Prin Invest *NASA Tech Officer* *CASE Category*
Tranter, W. H JSC/Dawson, C. E 45-Elec Engr

NGR 26-004-097 **University of Missouri - Rolla** **2647**
Research in bioenvironmental systems

Period *Obligations*
04/17/72-08/31/77 FY77 TOTAL $59,878
Prin Invest *NASA Tech Officer* *CASE Category*
Mills, J. B ARC/Webbon, B. W 59-Life Sci, NEC

NSG 1050 **University of Missouri - Rolla** **2648**
Structural-acoustic response and interior noise levels of fuselage structures

Period *Obligations*
09/01/74-05/31/78 FY77 $29,870 TOTAL $89,425
Prin Invest *NASA Tech Officer* *CASE Category*
Koval, L. R LARC/Mixson, J. S 41-Aero Engr

NSG 1369 **University of Missouri - Rolla** **2649**
Transport properties in the atmosphere of Jupiter

Period *Obligations*
01/01/77-08/31/78 FY77 $17,917 TOTAL $17,917
Prin Invest *NASA Tech Officer* *CASE Category*
Biolsi, L LARC/Graves, R. A., Jr 12-Chemistry
LARC/Jones, J. J

NSG 3113 **University of Missouri - Rolla** **2650**
Theoretical study of starved elastohydrodynamic lubrication of line contacts with a detailed treatment of inlet and exit flow regions

Period *Obligations*
07/01/76-06/30/78 FY77 $18,384 TOTAL $29,234
Prin Invest *NASA Tech Officer* *CASE Category*
Medrow, R. A. LERC/Wedeven, L. D 46-Mech Engr

NSG 8055 **University of Missouri - Rolla** **2651**
Coal interface detection

Period *Obligations*
09/01/77-06/05/78 FY77 $23,801 TOTAL $23,801
Prin Invest *NASA Tech Officer* *CASE Category*
Summers, D. A MSFC/Geller, G 47-Materials Engr
Barker, C. R

NSG 5151 **University of Missouri - Saint Louis** **2652**
Observations of ultraviolet emission lines in gaseous nebulae

Period *Obligations*
01/01/77-12/31/78 FY77 $1,500 TOTAL $1,500
Prin Invest *NASA Tech Officer* *CASE Category*
Schwartz, R. D GSFC/Kupperian, J. E., Jr
11-Astronomy

NAS 1-13889 **Washington University** **2653**
Viking/Lander imaging studies

Period *Obligations*
05/05/75-09/30/78 FY77 $76,076 TOTAL $112,701
Prin Invest *NASA Tech Officer* *CASE Category*
Arvidson, R. E LARC/Williams, T. S., Jr
LARC/Glenny, W. R 39-Env Sci, NEC

NAS 2-7613 **Washington University** **2654**
Lifter rotor random modes and vibration

Period *Obligations*
07/01/73-12/31/77 FY77 TOTAL $258,058
Prin Invest *NASA Tech Officer* *CASE Category*
Hohenemser, K. H ARC/Morse, H. A 41-Aero Engr
Prelewicz, D. A ARC/Statler, I. C
Yin, S. K

NAS 8-27976 **Washington University** **2655**
Design, development and operation of a heavy nuclei experiment under the HEAO program

Period *Obligations*
06/16/72-07/15/80 FY77 $74,000 TOTAL $365,784
Prin Invest *NASA Tech Officer* *CASE Category*
Israel, M. H MSFC/Krome, H. O 11-Astronomy
MSFC/Cochran, J

NAS 8-32354 **Washington University** **2656**
Data base management applications

Period	*Obligations*	
01/19/77-01/18/78	FY77 $100,000	TOTAL $100,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Eastwood, L.	MSFC/Daniels, J. L., Jr	
	MSFC/Wallace, G. R.	39-Env Sci, NEC

NGL 26-008-065 **Washington University** **2657**
Lunar sample analysis

Period	*Obligations*	
02/01/71-01/31/80	FY77 $271,747	TOTAL $2,104,516
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, R. M.	JSC/Harris, J. W.	13-Physics

NGR 26-008-001 **Washington University** **2658**
Determination of characteristics of high altitude primary cosmic radiation at low latitudes

Period	*Obligations*	
09/01/61-10/31/77	FY77 $113,435	TOTAL $1,399,716
Prin Invest	*NASA Tech Officer*	*CASE Category*
Israel, M. H.	HQ-SA/Sofia, S.	11-Astronomy
Klarmann, J.	HQ-SA/Opp, A. G.	

NSG 1084 **Washington University** **2659**
Imaging natural material with a planetary lander quasi-microscope

Period	*Obligations*	
07/01/74-08/31/77	FY77	TOTAL $28,741
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arvidson, R. E.	LARC/Kelly Iv, W. L.	32-Geological Sci

NSG 1392 **Washington University** **2660**
Development of ultrasonic techniques for non destructive evaluation based on Fourier analysis of signals from irregular and inhomogeneous structures

Period	*Obligations*	
03/15/77-03/14/78	FY77 $42,857	TOTAL $42,857
Prin Invest	*NASA Tech Officer*	*CASE Category*
Miller, J. G.	LARC/Heyman, J. S.	13-Physics
	LARC/Hendricks, H. D.	

NSG 2170 **Washington University** **2661**
Benefit-cost evaluation of an intra-regional air service in the bay area

Period	*Obligations*	
07/01/76-12/31/77	FY77 $40,000	TOTAL $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Haefner, L. E.	ARC/Waters, M. H.	41-Aero Engr

NSG 5187 **Washington University** **2662**
Copernicus observations for determinations of abundance of ratios

Period	*Obligations*	
07/01/77-06/30/78	FY77: $6,400	TOTAL $6,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, W. H.	GSFC/Kupperian, J. E., Jr	11-Astronomy

NSG 7016 **Washington University** **2663**
Lunar data analysis and synthesis program on lunar surface dynamics

Period	*Obligations*	
12/01/73-01/31/80	FY77 $73,253	TOTAL $358,937
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hohenberg, C. M.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7087 **Washington University** **2664**
Computerized analysis of Martian crater and aeolian feature data

Period	*Obligations*	
08/01/74-09/30/76	FY77 $40,000	TOTAL $76,525
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arvidson, R. E.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NSG 7334 **Washington University** **2665**
Planetary observations using a new Fabry-Perot interferometric method

Period	*Obligations*	
04/01/77-03/31/78	FY77 $73,288	TOTAL: $73,288
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, W. H.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. E.	

NSG 7372 **Washington University** **2666**
Interferometric spectral observations of the interstellar medium in the near ultraviolet

Period	*Obligations*	
07/01/77-06/30/78	FY77 $25,815	TOTAL $25,815
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, W. H.	HQ-SA/Roman, N. G.	11-Astronomy
	HQ-SA/Rosendhal, J. D.	

NSG 9055 **Washington University** **2667**
Chemical studies of materials and processes in the lunar regolith and of lunar and terrestrial igneous differentiation

Period	*Obligations*	
02/01/77-01/31/78	FY77 $133,000	TOTAL $133,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Haskin, L. A.	JSC/Harris, J. W.	32-Geological Sci
Blanchard, D. P.		

MONTANA

NGR 27-001-040 **Montana State University** **2668**
Establishment of a mission-oriented gravitation research center

Period	Obligations	
06/28/71-08/31/77	FY77: $16,734	TOTAL: $146,758
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nordtvedt, K., Jr.	HQ-SA/Roman, N. G. HQ-SA/Rosendhal, J. D.	11-Astronomy

NAS 5-23891 **University of Montana** **2669**
Data analysis and computer mapping

Period	Obligations	
02/24/77-02/24/78	FY77: $16,500	TOTAL: $16,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Craighead, J. J.	GSFC/Oseroff, H.	39-Env Sci, NEC

NEBRASKA

NAS 5-20814 **University of Nebraska - Lincoln** **2670**
ERTS data follow-on investigation

Period	Obligations	
03/10/75-07/10/77	FY77:	TOTAL: $70,736
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carlson, M.	GSFC/Szajna, E. F.	49-Engr, NEC

NAS 5-22903 **University of Nebraska - Lincoln** **2671**
Calibration of magnetic electron multipliers

Period	Obligations	
01/14/76-07/15/77	FY77.	TOTAL: $8,910
Prin Invest	*NASA Tech Officer*	*CASE Category*
Samson, J. R	GSFC/Kalet, M. W. GSFC/Neupert, W. M	13-Physics

NAS 8-31897 **University of Nebraska - Lincoln** **2672**
Investigate problems and establish design specifications for teleoperator manipulator

Period	Obligations	
01/20/76-06/20/78	FY77. $25,630	TOTAL: $65,995
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kersten, L	MSFC/Johnston, J. D. MSFC/Burch, J. L.	46-Mech Engr

NGL 28-004-020 **University of Nebraska - Lincoln** **2673**
Applications of remote sensing in resource management in Nebraska

Period	Obligations	
04/20/72-04/30/80	FY77 $100,000	TOTAL: $575,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carlson, M. P.	HQ-P/Vitale, J. A	39-Env Sci, NEC

NGR 28-004-021 **University of Nebraska - Lincoln** **2674**
Interaction of radiation with planetary gases

Period	Obligations	
02/23/73-01/31/80	FY77. $45,800	TOTAL: $309,731
Prin Invest	*NASA Tech Officer*	*CASE Category*
Samson, J. A.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NGR 28-004-025 **University of Nebraska - Lincoln** **2675**
Study into effects of oxidized titanium on hydrogen transport in titanium at low temperatures

Period	Obligations	
09/01/73-09/30/78	FY77. $23,131	TOTAL. $94,618
Prin Invest	*NASA Tech Officer*	*CASE Category*
Johnson, D. L	ARC/Nelson, H. G.	47-Materials Engr

NEVADA

NAS 8-31470 **Univ. of Nevada - Desert Res. Inst** **2676**
Study of zero-gravity atmospheric cloud physics lab chamber development

Period	Obligations	
05/13/75-12/01/77	FY77: $59,792	TOTAL: $108,790
Prin Invest	*NASA Tech Officer*	*CASE Category*
Squires, P.	MSFC/Smith, R. E. MSFC/Schrick, B. J.	31-Atmos Sci

NAS 8-31776 **Univ. of Nevada - Desert Res. Inst.** **2677**
Conduct preliminary design, development and analysis of a saturator for the atmospheric cloud physics laboratory experiment gas flow

Period	Obligations	
02/18/76-12/01/77	FY77: $42,957	TOTAL: $112,957
Prin Invest	*NASA Tech Officer*	*CASE Category*
Squires, P.	MSFC/Schrick, B. J. MSFC/Smith, R. E.	31-Atmos Sci

NSG 2140 **University of Nevada - Las Vegas** **2678**
Prediction of unsteady airloads in two dimensional subsonic compressible flow

Period	Obligations	
06/01/76-05/31/78	FY77: $25,365	TOTAL: $43,725
Prin Invest	*NASA Tech Officer*	*CASE Category*
Fromme, J. A. Goldberg, M. A	ARC/Davis, S. S.	41-Aero Engr

NAS 8-31441 **University of Nevada - Reno** **2679**
Zero-8 cloud drop coalescence experiment

Period	Obligations	
04/21/75-10/31/77	FY77: $59,965	TOTAL: $144,149
Prin Invest	*NASA Tech Officer*	*CASE Category*
Telford, J. W	MSFC/Smith, R. E. MSFC/Anderson, B. J	19-Phys Sci, NEC

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NEVADA (Continued)

NAS 8-31780 **University of Nevada - Reno** **2680**
Atmospheric cloud physics laboratory science simulator study

Period	*Obligations*	
01/05/76-06/30/77	FY77	TOTAL $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Squires, P	MSFC/Smith, R. E. MSFC/Anderson, B. J.	31-Atmos Sci

NAS 8-32313 **University of Nevada - Reno** **2681**
Study to perform preliminary experiments to evaluate particle generation and characterization techniques for zero gravity cloud physics experiments

Period	*Obligations*	
12/13/76-03/12/78	FY77 $99,663	TOTAL $99,663
Prin Invest	*NASA Tech Officer*	*CASE Category*
Koemond, W. C.	MSFC/Schrick, B. J. MSFC/Smith, R. E.	31-Atmos Sci

NEW HAMPSHIRE

NGR 30-001-041 **Dartmouth College** **2682**
Processing and analysis of data from VLF-LF experiments on the OGO-4 and OGO-6 spacecraft and continuation of studies at ground stations

Period	*Obligations*	
10/02/72-06/30/77	FY77 $15,000	TOTAL $250,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morgan, M. G.	HQ-ST/Taylor, W. W. HQ-ST/Schmerling, W. E.	13-Physics

NSG 5014 **Dartmouth College** **2683**
Geological applications of ERTS data

Period	*Obligations*	
07/01/74-11/30/77	FY77 $215,000	TOTAL $739,605
Prin Invest	*NASA Tech Officer*	*CASE Category*
Huke, R. E. Stolber, R. E. Malmstrom, V.	GSFC/Jastrow, R. GSFC/Ungar, S. G.	39-Env Sci, NEC

NSG 5145 **Dartmouth College** **2684**
Investigation of volcanic gases and dust (aerosols) in the stratosphere

Period	*Obligations*	
12/01/76-12/31/77	FY77 $40,291	TOTAL $40,291
Prin Invest	*NASA Tech Officer*	*CASE Category*
Decker, R. W.	GSFC/Hansen, J. E.	31-Atmos Sci

NSG 7292 **Dartmouth College** **2685**
Magnetopause-structure from satellite observations

Period	*Obligations*	
10/01/76-09/30/77	FY77 $20,000	TOTAL $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sonnerup, B.	HQ-ST/Taylor, W. W. HQ-ST/Schmerling, E. R.	39-Env Sci, NEC

NAS 5-23493 **University of New Hampshire** **2686**
Study effort for solar gamma ray experiment for the solar maximum mission

Period	*Obligations*	
03/26/76-09/30/76	FY77: $100	TOTAL $145,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chupp, E. L.	GSFC/Donley, J. L.	11-Astronomy

NAS 5-23761 **University of New Hampshire** **2687**
Hardware phase of the solar gamma ray experiment for the solar maximum mission

Period	*Obligations*	
10/01/76-09/30/81	FY77: $1,271,390	TOTAL $1,271,390
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chupp, E. L.	GSFC/Donley, J. L.	31-Atmos Sci

NAS 5-23803 **University of New Hampshire** **2688**
Analysis and interpretation of Pioneer 10 and 11 data

Period	*Obligations*	
07/01/76-10/15/77	FY77: $27,278	TOTAL $27,278
Prin Invest	*NASA Tech Officer*	*CASE Category*
Webber, W. R.	GSFC/Trainor, J. H.	11-Astronomy

NGL 30-002-018 **University of New Hampshire** **2689**
Investigation of energy levels in foil excited atomic beams

Period	*Obligations*	
03/15/65-09/30/77	FY77 $20,000	TOTAL $192,355
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chupp, E. L.	HQ-ST/Timothy, A. F.	13-Physics

NGL 30-002-021 **University of New Hampshire** **2690**
Investigation and development of techniques for solar neutron and gamma ray detection

Period	*Obligations*	
02/26/66-03/31/78	FY77 $85,000	TOTAL $1,102,365
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chupp, E. L.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NGR 30-002-052 **University of New Hampshire** **2691**
Research program in area of cosmic ray and X-ray astronomy

Period	*Obligations*	
02/12/70-09/30/77	FY77 $100,000	TOTAL $860,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Webber, W. R.	HQ-SA/Sofia, S. HQ-SA/Opp, A. G.	11-Astronomy

NGR 30-002-054 **University of New Hampshire** **2692**
Auroral particle measurements

Period	*Obligations*	
09/12/69-12/31/76	FY77	TOTAL $291,811
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arnoldy, R. E.	HQ-ST/Cauffman, D. P.	13-Physics

NEW HAMPSHIRE (Continued)

NGR 30-002-104 **University of New Hampshire** **2693**
Gamma ray detector on OSO-7

Period	Obligations	
12/04/73-08/31/77	FY77:	TOTAL: $130,535
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chupp, E. L.	HQ-ST/Timothy, A. F.	13-Physics

NSG 6013 **University of New Hampshire** **2694**
Investigation of electrical currents in the auroral ionosphere

Period	Obligations	
07/01/76-12/31/78	FY77: $81,100	TOTAL: $147,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Arnoldy, R. L.	WFC/Ballance, C. W., Jr.	31-Atmos Sci
	WFC/Gray, J. W.	

NEW JERSEY

NAS 1-9705 **Princeton University** **2695**
Participation in the science planning for the Viking 1975 missions in the area of magnetic properties

Period	Obligations	
04/03/70-09/30/78	FY77: $72,634	TOTAL: $252,694
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hargraves, R. B.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	19-Phys Sci, NEC

NAS 1-13502 **Princeton University** **2696**
In-flight evaluation of decoupler longitudinal controls for a STOL transport aircraft

Period	Obligations	
08/19/74-04/01/78	FY77: $46,288	TOTAL: $178,945
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sockel, E.	LARC/Miller, G. K.	41-Aero Engr
Ellis, D. R.	LARC/Queijo, M. J.	

NAS 2-9437 **Princeton University** **2697**
Superimposed display symbology as a landing aid for helicopters

Period	Obligations	
11/01/76-11/01/77	FY77: $71,695	TOTAL: $71,695
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dukes, T. A.	ARC/Key, D. L.	41-Aero Engr
	ARC/Franklin, J. A.	

NAS 5-20833 **Princeton University** **2698**
Large high resolution integrating TV sensor for astronomical applications

Period	Obligations	
10/23/74-08/31/76	FY77: $10,400	TOTAL: $473,182
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lowrance, J. L.	GSFC/Sobieski, S.	11-Astronomy
	GSFC/Kelsall, T.	

NAS 5-22360 **Princeton University** **2699**
Spectroscopy using the one meter ultraviolet optical telescope for spacelab astronomy missions

Period	Obligations	
04/18/75 12/31/77	FY77:	TOTAL: $19,277
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jenkins, E. B.	GSFC/Stecker, T. P.	32-Geological Sci

NAS 5-22989 **Princeton University** **2700**
70 mm/sec TV camera

Period	Obligations	
02/11/76-12/11/77	FY77: $79,894	TOTAL: $279,894
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schwarzschild, M.	GSFC/Sobieski, S.	11-Astronomy

NAS 5-23386 **Princeton University** **2701**
Parametric test and evaluation system

Period	Obligations	
04/29/76-06/29/77	FY77:	TOTAL: $144,841
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lowrance, J. L.	GSFC/Tycz, M.	11-Astronomy

NAS 5-23387 **Princeton University** **2702**
Secondary electron conduction tube optimization and standardization program

Period	Obligations	
06/01/76-11/07/77	FY77: $299,310	TOTAL: $776,735
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lowrance, J. L.	GSFC/Kelsall, T.	11-Astronomy

NAS 5-23576 **Princeton University** **2703**
Orbital operations, data reduction and analysis, and OAO GUEST investigator program

Period	Obligations	
09/01/76-09/30/78	FY77: $940,000	TOTAL: $1,177,106
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spitzer, L., Jr.	GSFC/Kupperian, J. E	11-Astronomy

NAS 5-24100 **Princeton University** **2704**
Cosmic background Explorer satellite mission definition study

Period	Obligations	
02/01/77-02/01/78	FY77: $18,000	TOTAL: $18,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilkinson, D. T	GSFC/Mather, J. C.	11-Astronomy
	GSFC/Muller, R.	

NAS 8-32614 **Princeton University** **2705**
Develop and test mathematical models of the three dimensional flow field and particle motions

Period	Obligations	
08/23/77-08/22/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Saville, D. A.	MSFC/Reeves, F. A.	51-Biology
	MSFC/Snyder, R.	

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NASW 2975 **Princeton University** **2706**
Conference on Partially Ionized Plasmas including the Third Symposium on Uranium Plasmas

Period	*Obligations*	
07/27/76-09/15/76	FY77	TOTAL $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hahn, R. Layton, P. Ey, G. R.	HQ-RR/Thom, K LERC/Hohl, F.	13-Physics

NGL 31-001-005 **Princeton University** **2707**
Formation & stability of magnetogasdynamic front in a pitch discharge

Period	*Oblig. to*	
09/24/62-09/30/79	FY77 $160,000	TOTAL $2,422,912
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jahn, R. G Clark, K. E.	HQ-RP/Lazar, J.	42-Astro Engr

NGL 31-001-007 **Princeton University** **2708**
Theoretical & experimental studies of ultraviolet phenomena of astronomical interest & galactic gas dynamics

Period	*Obligations*	
05/06/63-03/31/80	FY77 $100,000	TOTAL $1,883,743
Prin Invest	*NASA Tech Officer*	*CASE Category*
Spitzer, L., Jr	HQ-SA/Roman, N. G HQ-SA/Rosendhal, J. D	11-Astronomy

NGL 31-001-146 **Princeton University** **2709**
Boundary layer noise and panel flutter

Period	*Obligations*	
10/24/68-11/01/77	FY77	TOTAL $342,280
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dowell, E. H.	LARC/Mixson, J. S.	41-Aero Engr

NGL 31-001-252 **Princeton University** **2710**
Air traffic control technology

Period	*Obligations*	
11/15/71-01/31/80	FY77 $98,333	TOTAL $418,333
Prin Invest	*NASA Tech Officer*	*CASE Category*
Graham, D.	LARC/Reid, H. J., Jr LARC/Macl., W. D.	41-Aero Engr

NGL 31-001-283 **Princeton University** **2711**
Lunar sample analysis

Period	*Obligations*	
06/30/72-06/30/78	FY77 $14,000	TOTAL $253,990
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hollister, L. S.	JSC/Harris, J. W.	11-Astronomy

NGR 31-001-202 **Princeton University** **2712**
Lunar retro-reflector ranging

Period	*Obligations*	
05/27/70-05/14/78	FY77	TOTAL $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dicke, R. H.	HQ-SA/Boggess, N. W.	13-Physics

NGR 31-001-242 **Princeton University** **2713**
A new spectroscopic technique utilizing the Fabry-Perot interferometer

Period	*Obligations*	
07/13/72-05/31/77	FY77	TOTAL $261,995
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, W. H.	HQ-SL/Brunk, W. E.	11-Astronomy

NGR 31-001-277 **Princeton University** **2714**
VTOL mathematical model designs for optimal control systems designs

Period	*Obligations*	
04/20/72-01/31/78	FY77 $61,020	TOTAL $310,823
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dukes, T. A. Born, G. J.	ARC/Brigadier, W. L.	41-Aero Engr

NGR 31-001-307 **Princeton University** **2715**
Fundamental and applied research on core engine combustion noise of aircraft engines

Period	*Obligations*	
06/01/73-12/31/76	FY77	TOTAL $39,444
Prin Invest	*NASA Tech Officer*	*CASE Category*
Plett, E. G. Summerfield, M.	LERC/Stone, J. R.	41-Aero Engr

NSG 1070 **Princeton University** **2716**
Resonant Doppler velocimeter

Period	*Obligations*	
07/01/74-10/31/77	FY77 $40,630	TOTAL $127,289
Prin Invest	*NASA Tech Officer*	*CASE Category*
Miles, R. B.	LARC/Honaker, W. C.	13-Physics

NSG 1253 **Princeton University** **2717**
Sound transmission analysis for determining interior sound levels

Period	*Obligations*	
11/01/75-10/31/77	FY77 $41,430	TOTAL $76,058
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dowell, E. H.	LARC/Mixson, J. S. LARC/Howlett, J. T.	41-Aero Engr

NSG 2062 **Princeton University** **2718**
Studies of space colonization

Period	*Obligations*	
01/01/75-01/31/78	FY77 $86,375	TOTAL $223,805
Prin Invest	*NASA Tech Officer*	*CASE Category*
ONeill, G. K. OLeary, B.	ARC/Gilbreath, W. ARC/Zeitman, B. B.	99-Multi-Discip

NSG 2114 **Princeton University** **2719**
Study of a small separated region generated by a ramp at M-3

Period	*Obligations*	
11/01/75-10/31/77	FY77 $54,790	TOTAL $86,360
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bogdonoff, S. M.	ARC/Horstman, C. C. ARC/Marvin, J. G.	41-Aero Engr

NSG 2181 **Princeton University** **2720**
An analytical study of the influence of aeroelasticity and feedback on the lateral directional dynamics of a tilt rotor
Period *Obligations*
09/01/76-11/30/77 FY77: TOTAL: $48,138
Prin Invest *NASA Tech Officer* *CASE Category*
Curtiss, H. C., Jr. ARC/Rabbott, J. P., Jr 41-Aero Engr

NSG 2194 **Princeton University** **2721**
Transonic flow around wings, bodies and wing-body configurations
Period *Obligations*
11/01/76-09/30/78 FY77: $56,500 TOTAL: $56,500
Prin Invest *NASA Tech Officer* *CASE Category*
Dowell, E. H. ARC/Davis, S. S. 41-Aero Engr
ARC/Chapman, G. T.

NSG 5063 **Princeton University** **2722**
Measurements of sec tube energetic charged particle induced background
Period *Obligations*
04/01/75-02/15/78 FY77: TOTAL: $22,031
Prin Invest *NASA Tech Officer* *CASE Category*
Lowrance, J. L. GSFC/Kelsall, T. N 49-Engr, NEC
Spitzer, L., Jr.

NSG 7053 **Princeton University** **2723**
Theoretical & laboratory planetary physics
Period *Obligations*
04/01/74-09/30/76 FY77: TOTAL: $82,982
Prin Invest *NASA Tech Officer* *CASE Category*
Danielson, R. E. HQ-SL/Brunk, W. E. 11-Astronomy

NSG 7080 **Princeton University** **2724**
Study of elastic wave propagation in the moon
Period *Obligations*
07/01/74-01/31/78 FY77: $18,619 TOTAL: $176,784
Prin Invest *NASA Tech Officer* *CASE Category*
Phinney, R. A. HQ-SL/Goldstein, B. E.
HQ-SL/Quaide, W. L 32-Geological Sci

NSG 7256 **Princeton University** **2725**
Research in extragalactic astrophysics
Period *Obligations*
07/01/76-06/30/78 FY77: TOTAL: $17,000
Prin Invest *NASA Tech Officer* *CASE Category*
Bahcall, N. A. HQ-SA/Roman, N. G. 11-Astronomy

NSG 7280 **Princeton University** **2726**
The effect of gravity and weightlessness on the development and regeneration of the giant Coenocyte Caulerpa
Period *Obligations*
10/01/76-09/30/77 FY77: $40,000 TOTAL: $40,000
Prin Invest *NASA Tech Officer* *CASE Category*
Jacobs, W. P. HQ-SB/Halstead, T. W. 51-Biology
HQ-SB/Young, R. S

NSG 7283 **Princeton University** **2727**
Condensed matter in astrophysics
Period *Obligations*
10/01/76-11/30/77 FY77: $19,350 TOTAL: $19,350
Prin Invest *NASA Tech Officer* *CASE Category*
Smoluchowski, R. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NSG 7302 **Princeton University** **2728**
New radiometers for balloon 3 K FIR experiment
Period *Obligations*
11/15/76-11/14/77 FY77: $24,400 TOTAL: $24,400
Prin Invest *NASA Tech Officer* *CASE Category*
Wilkinson, D. HQ-SA/Boggess, N. W. 11-Astronomy
HQ-SA/Roman, N. G.

NSG 7379 **Princeton University** **2729**
Large area charge-coupled device image sensors for space astronomy
Period *Obligations*
11/01/77-06/01/78 FY77 $98,775 TOTAL: $98,775
Prin Invest *NASA Tech Officer* *CASE Category*
Schwarzschild, M. HQ-SA/Rosendahl, J. D. 11-Astronomy

NSR 31-001-901 **Princeton University** **2730**
Ultraviolet spectrographic investigations by high altitude rocket flights
Period *Obligations*
06/30/67-12/31/76 FY77 TOTAL: $1,676,196
Prin Invest *NASA Tech Officer* *CASE Category*
Lowrance, J. L. HQ-SA/Roman, N. G. 11 stronomy
Spitzer, L., Jr. HQ-SA/Ott, E. J.

NSG 5195 **Rutgers University - New Brunswick** **2731**
Investigation of the detailed light curves using SAS-3
Period *Obligations*
08/01/77-07/31/78 FY77 $10,690 TOTAL: $10,690
Prin Invest *NASA Tech Officer* *CASE Category*
Matilsky, T. A. GSFC/Kupperian, J. E., Jr. 11-Astronomy

NSG 7327 **Rutgers University - New Brunswick** **2732**
Research and studies of metal silicate relationships in howardite breccias
Period *Obligations*
02/01/77-01/31/78 FY77: $27,955 TOTAL: $27,955
Prin Invest *NASA Tech Officer* *CASE Category*
Hewins, R. H. HQ-SL/French, B. M 32-Geological Sci
HQ-SL/Quaide, W. L

NSG 1314 **Rutgers University - Newark** **2733**
Three-body recombination in turbulent supersonic flow
Period *Obligations*
06/07/76-07/06/78 FY77: $32,000 TOTAL: $64,000
Prin Invest *NASA Tech Officer* *CASE Category*
Johnson, J. A., III LARC/Beach, H. L., Jr. 13-Physics

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NEW MEXICO

NGT 32-010-001 **New Mexico Highlands University** **2734**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/74-05/31/78	FY77: $7,000	TOTAL: $49,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zenick, H.	HQ-P/Pohly, J. G HQ-U/Jenkins, H. G.	99-Multi-Discip

NSG 804 **New Mexico Highlands University** **2735**
Study of bicyclic and cage compounds

Period	Obligations	
01/01/75-05/31/76	FY77:	TOTAL: $16,417
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clark, R. D	KSC/Bryan, C. J. KSC/Gayle, J. B.	12-Chemistry

NCA 5-58 **New Mexico Institute of Mining & Tech** **2736**
Joint observatory for cometary research

Period	Obligations	
09/29/75-09/30/76	FY77	TOTAL: $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hume, W. Moore, E.	GSFC/Maran, S. P.	11-Astronomy

NCA 5-59 **New Mexico Institute of Mining & Tech** **2737**
Use of multichannel spectrometer for solar research

Period	Obligations	
09/22/75-12/31/76	FY77:	TOTAL: $6,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hume, W.	GSFC/Maran, S. P.	11-Astronomy

NCA 5-64 **New Mexico Institute of Mining & Tech** **2738**
Research of cometary and astrophysical sciences

Period	Obligations	
04/30/76-09/30/77	FY77: $10,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, E	GSFC/Hobbs, R. W.	11-Astronomy

NCA 5-67 **New Mexico Institute of Mining & Tech** **2739**
Research in cometary and astrophysical services

Period	Obligations	
08/23/76-09/30/77	FY77: $5,000	TOTAL: $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, E	GSFC/Hobbs, R. W.	11-Astronomy

NCA 5-68 **New Mexico Institute of Mining & Tech** **2740**
Research in cometary and astrophysical sciences

Period	Obligations	
08/23/76-09/30/77	FY77: $4,000	TOTAL: $4,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, E.	GSFC/Hobbs, R. W.	11-Astronomy

NCA 5-69 **New Mexico Institute of Mining & Tech** **2741**
Cometary observations and research activities

Period	Obligations	
08/23/76-12/31/80	FY77: $5,000	TOTAL: $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, E	GSFC/Hobbs, R. W.	11-Astronomy

NCA 5-71 **New Mexico Institute of Mining & Tech** **2742**
Cometary and astrophysical research activities

Period	Obligations	
11/01/76-09/30/77	FY77: $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, E.	GSFC/Hobbs, R. W.	11-Astronomy

NCA 5-72 **New Mexico Institute of Mining & Tech** **274.**
Multichannel spectrometer observations and analysis of data

Period	Obligations	
12/13/76-12/31/77	FY77: $6,400	TOTAL: $6,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ford, K. W.	GSFC/Hobbs, R. W.	11-Astronomy

NAS 5-20681 **New Mexico State University - Las Cruces** **2744**
Field and analytical engineering support of the sounding rocket program

Period	Obligations	
07/26/74-07/31/77	FY77: $738,317	TOTAL: $2,373,816
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sayles, A., Jr.	GSFC/Pincus, R. GSFC/Bissell, E. E.	19-Phys Sci, NEC

NAS 5-24241 **New Mexico State University - Las Cruces** **2745**
Sounding rocket support

Period	Obligations	
08/01/77-07/31/80	FY77: $156,600	TOTAL: $156,600
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lawrence, H. Connell, H	GSFC/Bissell, E. E HQ-SA/Logan, W. S	49-Engr, NEC

NAS 6-2686 **New Mexico State University - Las Cruces** **2746**
Tone ranging/telemetering interferometer system

Period	Obligations	
11/21/75-09/21/77	FY77	TOTAL: $87,826
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gammill, B. G	WFC/West, W. W WFC/Bell, H. T	46-Mech Engr

NAS 6-2795 **New Mexico State University - Las Cruces** **2747**
Services and materials necessary for engineering studies related to airborne surface contour mapping

Period	Obligations	
11/16/76-01/14/78	FY77: $64,465	TOTAL: $64,465
Prin Invest	*NASA Tech Officer*	*CASE Category*
Guard, K	WFC/Walsh, E. J WFC/Krabill, W. B	32-Geological Sci

NAS 9-95469 **New Mexico State University - Las Cruces** **2748**
Shuttle imaging radar antenna design evaluation and study

Period	*Obligations*	
06/28/76-08/15/76	FY77:	TOTAL: $9,411
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carver, K	JSC/Nitschke, H. A	39-Env Sci, NEC

NAS 9-95470 **New Mexico State University - Las Cruces** **2749**
Antenna and radiometric loss measurement for airborne instrumentation research program

Period	*Obligations*	
07/16/76-09/30/76	FY77	TOTAL: $49,934
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lackner, J. R.	JSC/Fenner, R. G	39-Env Sci, NEC

NAS 9-95471 **New Mexico State University - Las Cruces** **2750**
Phase II shuttle imaging radar evaluation and study

Period	*Obligations*	
07/16/76-11/15/76	FY77:	TOTAL: $31,138
Prin Invest	*NASA Tech Officer*	*CASE Category*
Carver, K. R.	JSC/Nitschke, H. A	39-Env Sci, NEC

NAS 9-95477 **New Mexico State University - Las Cruces** **2751**
Antenna and radiometric loss measurements for aircraft instrumentation research project

Period	*Obligations*	
01/03/77-03/01/78	FY77 $122,919	TOTAL: $122,919
Prin Invest	*NASA Tech Officer*	*CASE Category*
Henry, D. G.	JSC/Fenner, R. G.	45-Elec Engr

NAS 9-95479 **New Mexico State University - Las Cruces** **2752**
Study to evaluate and test defined antenna designs for selection of the shuttle imaging radar antenna

Period	*Obligations*	
05/17/77-06/ 7/78	FY77 $90,120	TOTAL: $90,120
Prin Invest	*NASA Tech Officer*	*CASE Category*
Henry, D. G.	JSC/Nitschke, H. A	39-Env Sci, NEC

NAS 9-95482 **New Mexico State University - Las Cruces** **2753**
Study to test and evaluate residual SEASAT hardware for possible implementation for the OFT-2 SAR antenna

Period	*Obligations*	
09/23/77-09/23/78	FY77 $19,979	TOTAL: $19,979
Prin Invest	*NASA Tech Officer*	*CASE Category*
Henry, D. G.	JSC/Nitschke, H. A.	39-Env Sci, NEC

NAS10-8712 **New Mexico State University - Las Cruces** **2754**
Research and development and technical operations support

Period	*Obligations*	
12/02/74-06/01/77	FY77 $70,491	TOTAL: $600,491
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	KSC/Schlimmer, G. E.	19-Phys Sci, NEC

NAS10-9115 **New Mexico State University - Las Cruces** **2755**
Technical operations support for the spacecraft laboratory

Period	*Obligations*	
03/02/77-03/01/78	FY77 $279,815	TOTAL: $279,815
Prin Invest	*NASA Tech Officer*	*CASE Category*
Noda, T	KSC/Schlimmer, G. E	42-Astro Engr

NGL 32-003-001 **New Mexico State University - Las Cruces** **2756**
Photographic patrol and study of physical conditions on the moon and planets

Period	*Obligations*	
04/15/61-04/30/78	FY77 $70,096	TOTAL: $1,818,908
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beebe, R. F.	HQ-SL/Brunk, W. E HQ-SL/Quaide, W. L	11-Astronomy

NGT 32-003-750 **New Mexico State University - Las Cruces** **2757**
Training of undergraduate students in sciences and engineering

Period	*Obligations*	
06/01/75-05/31/77	FY77	TOTAL: $14,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zimmerman, R. M.	HQ-P/Pohly, J. G. HQ-U/Jenkins, H. G	49-Engr, NEC

NSG 3069 **New Mexico State University - Las Cruces** **2758**
Interferogram analysis of periodic spectra

Period	*Obligations*	
05/15/75-05/14/77	FY77:	TOTAL: $73,316
Prin Invest	*NASA Tech Officer*	*CASE Category*
Armstrong, R. L.	LERC/Salzman, J. A	13-Physics

NSG 7346 **New Mexico State University - Las Cruces** **2759**
Two station meteor patrol for orbit determination and spectroscopy

Period	*Obligations*	
07/11/77-01/31/78	FY77: $9,043	TOTAL: $9,043
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beebe, H. A	HQ-SL/Donn, B. D HQ-SL/Brunk, W. E	11-Astronomy

NSG 3092 **University of Albuquerque** **2760**
In situ analysis of trace metal ion pollutants in natural waters

Period	*Obligations*	
01/05/76-02/04/78	FY77 $41,514	TOTAL: $74,674
Prin Invest	*NASA Tech Officer*	*CASE Category*
Urzendowski, R. M.	LERC/Fordyce, J. S	12-Chemistry

NAS 1-11855 **University of New Mexico** **2761**
Participation in science planning for Viking 1975 missions in area of inorganic chemistry

Period	*Obligations*	
08/18/72-06/30/78	FY77 $36,104	TOTAL: $97,845
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keil, K	LARC/Williams, J. S., Jr LARC/Glenny, W. R	12-Chemistry

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NAS 3-19434 **University of New Mexico** **2762**
Technical search and processing of abstracts into documents for eight specific fields of energy

Period *Obligations*
05/08/75-10/07/76 FY77 TOTAL $37,026
Prin Invest *NASA Tech Officer* *CASE Category*
Burch, I HRC/Hyland, R I 49-Engr, NEC

NASW 2805 **University of New Mexico** **2763**
Operation of a NASA's Industrial Applications Center

Period *Obligations*
09/11/75-06/30/76 FY77 TOTAL $227,984
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HQ-KT/Bivins, R G 99-Multi-Discip

NASW 2936 **University of New Mexico** **2764**
Operation of NASA's Industrial Applications Center

Period *Obligations*
07/01/76-09/30/77 FY77 $298,864 TOTAL $298,864
Prin Invest *NASA Tech Officer* *CASE Category*
Unavailable HQ-KT/Bivins, R G 99-Multi-Discip

NCA 5-55 **University of New Mexico** **2765**
Molecular ion spectra research

Period *Obligations*
09/15/75-08/31/76 FY77 TOTAL $7,000
Prin Invest *NASA Tech Officer* *CASE Category*
Beckel, C L GSFC/Temkin, A 11-Astronomy

NCA 5-56 **University of New Mexico** **2766**
Solar physics research

Period *Obligations*
09/15/75-12/31/76 FY77 TOTAL $1,200
Prin Invest *NASA Tech Officer* *CASE Category*
Regener, V H GSFC/Jones, H P 11-Astronomy

NCA 5-57 **University of New Mexico** **2767**
Cosmic X-ray sources investigations

Period *Obligations*
09/15/75-12/31/76 FY77 TOTAL $19,800
Prin Invest *NASA Tech Offic* *CASE Category*
StJohn, R GSFC/Maran, S P 11-Astronomy

NCA 5-66 **University of New Mexico** **2768**
Reduction and analysis of OSO-8 data

Period *Obligations*
08/25/76-12/31/77 FY77 $4,400 TOTAL $4,400
Prin Invest *NASA Tech Officer* *CASE Category*
Regener, V H GSFC/Jones, H P 11-Astronomy

NGL 32-004-011 **University of New Mexico** **2769**
Cr[illegible]rative study of lunar craters and terrestrial volcano-tectonic dep[illegible]ms in rhyolite ash-flow plateaus

Period *Obligations*
10/12/64-08/31/78 FY77 TOTAL $295,800
Prin Invest *NASA Tech Officer* *CASE Category*
Elston, W E HQ-SL/Goldstein, B E 32-Geological Sci

NGL 32-004-063 **University of New Mexico** **2770**
Lunar sample analysis

Period *Obligations*
01/06/71-01/31/80 FY77 $95,078 TOTAL $703,463
Prin Invest *NASA Tech Officer* *CASE Category*
Keil, K JSC/Harris, J W 12-Chemistry

NGL 32-004-064 **University of New Mexico** **2771**
Mineralogy and chemistry of polymict-brecciated stone meteorites

Period *Obligations*
06/14/71-02/29/80 FY77 $89,798 TOTAL $479,137
Prin Invest *NASA Tech Officer* *CASE Category*
Keil, K HQ-SL/French, B M 32-Geological Sci
Fodor, R V HQ-SL/Quaide, W L
Taylor, G J

NGR 32-004-062 **University of New Mexico** **2772**
Search for evidence of dynamic process

Period *Obligations*
06/22/70-12/31/78 FY77 $21,000 TOTAL $151,250
Prin Invest *NASA Tech Officer* *CASE Category*
Elston, W E HQ-SL/Dwornik, S E 32-Geological Sci
HQ-SL/Wahmann, R

NGR 32-004-086 **University of New Mexico** **2773**
Correlation between interplanetary magnetic field, solar wind, and cosmos

Period *Obligations*
08/15/73-01/31/77 FY77 TOTAL $20,560
Prin Invest *NASA Tech Officer* *CASE Category*
Ahluwalia, H S HQ-SA Calahan, H D 13-Physics

NGT 32-004-750 **University of New Mexico** **2774**
Training of undergraduate students in sciences and engineering

Period *Obligations*
06/01/75-05/31/77 FY77 TOTAL $14,000
Prin Invest *NASA Tech Officer* *CASE Category*
Theve, P A HQ-P/Pohly, J G 49-Engr, NEC
HQ-U/Jenkins, H G

NGT 32-004-770 **University of New Mexico** **2775**
A precooperative education program

Period *Obligations*
07/25/77-07/24/78 FY77 $9,961 TOTAL $9,961
Prin Invest *NASA Tech Officer* *CASE Category*
Etter, D M HQ-P/Pohly, J G 49-Engr, NEC
HQ-U/Jenkins, H G

NEW MEXICO (Continued)

NSG 902 — **Western New Mexico U** — 2775
Investigation of acceptance of solar heating and cooling in the building industry in New Mexico
Period: 08/01/75-07/31/76 — Obligations: FY 77 — TOTAL $27,934
Prin. Invest.: Lundahl, C. R — NASA Tech. Officer: JPL/Bourke, R. D — CASE Category: 62-Social Aspects

NEW YORK

NAS 5-23688 — **Adelphi University** — 2777
Determination of the effectiveness of emulsion technology in increasing the efficiency of boiler furnaces and reducing the pollutant emissions from heavy residual fuels
Period: 09/03/76-07/15/77 — Obligations: FY 77 — TOTAL $58,527
Prin. Invest.: Dooher, J. P; Gienberg, R. W — NASA Tech. Officer: GSFC/Tarlton, M. J — CASE Category: 39-Env. Sci., NEC

NSG 2088 — **Adelphi University** — 2778
Study of the thin turbulent shear layers on the optical transfer function of an imaging system
Period: 09/01/75-07/31/78 — Obligations: FY 77 $10,400 — TOTAL $59,869
Prin. Invest.: Steinmetz, W. J — NASA Tech. Officer: ARC/Buell, D. A — CASE Category: 12-Chemistry

NAS 8-31711 — **Alfred University** — 2779
Space processing application shuttle payloads requirements specifications study
Period: 09/26/75-06/01/76 — Obligations: FY — TOTAL $1,000
Prin. Invest.: Lacourse, W. C — NASA Tech. Officer: MSFC/Taylor, K. R; MSFC/Poe, J. W — CASE Category: 19-Phys. Sci., NEC

NCA 2-75602 — **Brooklyn College** — 2780
Influence of weightlessness on the aging process
Period: 06/15/76-10/01/77 — Obligations: FY 77 — TOTAL $10,000
Prin. Invest.: Cottrell, S. F — NASA Tech. Officer: ARC/Miquel, J — CASE Category: 51-Biology

NSG 1378 — **Brooklyn College** — 2781
Research in medium and high energy atomic physics theory
Period: 12/03/76-08/31/78 — Obligations: FY 77 $42,170 — TOTAL $42,170
Prin. Invest.: Franco, V; Thomas, B. K — NASA Tech. Officer: LARC/Meador, W. F; LARC/Wilson, J. W — CASE Category: 13-Physics

NAS 6-2439 — **City College of New York** — 2782
GEOS-C research study
Period: 02/04/74-01/31/78 — Obligations: FY 77 $41,000 — TOTAL $98,000
Prin. Invest.: Pierson, W. J — NASA Tech. Officer: WFC/Rossi, L. C; WFC/Stanley, H. R — CASE Category: 32-Geological Sci.

NAS 9-13642 — **City College of New York** — 2783
Joint meteorological, oceanographic and sensor evaluation program - Skylab experiment S-193
Period: 07/01/73-10/31/77 — Obligations: FY 77 $2,500 — TOTAL $389,008
Prin. Invest.: Pierson, W. J — NASA Tech. Officer: JSC/Byrns, Z. H — CASE Category: 13-Physics

NAS 9-13940 — **City College of New York** — 2784
Communication systems analysis study
Period: 04/04/74-06/01/78 — Obligations: FY 77 $30,000 — TOTAL $189,892
Prin. Invest.: Schilling, D. L; Schonberg, N; Lee, R — NASA Tech. Officer: JSC/Land, C. K — CASE Category: 45-Elec. Engr.

NGL 33-013-040 — **City College of New York** — 2785
Theoretical research in astrophysics and astronomy
Period: 04/23/69-09/30/80 — Obligations: FY 77 $20,000 — TOTAL $354,000
Prin. Invest.: Erlbach, E — NASA Tech. Officer: GSFC/Canuto, V; GSFC/Stothers, R — CASE Category: 11-Astronomy

NGR 33-013-086 — **City College of New York** — 2786
Models for large scale meteorological prediction experiments
Period: 10/01/73-11/30/77 — Obligations: FY 77 $48,991 — TOTAL $181,967
Prin. Invest.: Spar, J — NASA Tech. Officer: GSFC/Hansen, J. E — CASE Category: 31-Atmos. Sci.

NSG 1169 — **City College of New York** — 2787
An adaptive learning control system for aircraft
Period: 05/01/75-09/30/78 — Obligations: FY 77 $19,564 — TOTAL $84,352
Prin. Invest.: Mekel, R — NASA Tech. Officer: LARC/Montgomery, R. C — CASE Category: 41-Aero. Engr.

NSG 1305 — **City College of New York** — 2788
Large scale eddy transports in the upper atmosphere
Period: 05/03/76-11/0_/77 — Obligations: FY 77 — TOTAL $25,000
Prin. Invest.: Chen, C. M — NASA Tech. Officer: LARC/Turner, R. E; LARC/Callis, L. B — CASE Category: 31-Atmos. Sci.

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NSG 5013 **City College of New York** **2789**
Efficient processing of video signals

Period	*Obligations*	
06/15/74-09/30/78	FY77 $45,000	TOTAL $150,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schilling, D. L	GSFC/Kahle, D. R.	45-Elec Engr

NSG 7144 **City College of New York** **2790**
Applications of satellite technology for regional organizations

Period	*Obligations*	
06/01/75-06/30/77	FY77 $114,667	TOTAL $400,606
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schilling, D. L	HQ-EE/Ernst, H. M	49-Engr, NEC
Wecker, S. C	HQ-EE/Fang, A. C	

NAS 8-31708 **Clarkson College of Technolog.** **2791**
Space processing applications shuttle payloads requirements specification study

Period	*Obligations*	
09/26/75-03/25/76	FY77	TOTAL $4,814
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cole, R	MSFC/Tatler, K. R	19-Phys Sci, NEC
Wilcox, W. R.	MSFC/Poe, J. W.	

NAS 8-31709 **Clarkson College of Technology** **2792**
Space processing applications shuttle payloads requirements specification study

Period	*Obligations*	
09/26/75-03/25/76	FY77	TOTAL $4,972
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilcox, W. R.	MSFC/Taylor, K. R	19-Phys Sci, NEC
	MSFC/Poe, J. W	

NSG 3100 **Clarkson College of Technology** **2793**
Polymer morphology and random chain scission

Period	*Obligations*	
07/01/76-09/30/77	FY77	TOTAL $44,738
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jellinek, H. H.	LERC/Serafini, T. T	12-Chemistry

NSG 7170 **Clarkson College of Technology** **2794**
Particle induced visual sensations

Period	*Obligations*	
09/01/75-07/28/77	FY77	TOTAL $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
McNulty, P. J.	HQ-SB/Halstead, T. W	
Pease, V. P		59-Life Sci, NEC
Bond, V. P		

NSG 9059 **Clarkson College of Technology** **2795**
Light flash phenomena induced by haze particles

Period	*Obligations*	
09/01/77-08/31/78	FY77 $34,331	TOTAL $34,331
Prin Invest	*NASA Tech Officer*	*CASE Category*
McNulty, P. J	JSC/Bailey, J. V	13-Physics
Pease, V. P		

NAS 1-14745 **Columbia University** **2796**
Aircraft noise adaptation study

Period	*Obligations*	
01/06/77-06/30/78	FY77 $32,499	TOTAL $32,499
Prin Invest	*NASA Tech Officer*	*CASE Category*
Galanter, E	LARC/Cawthorn, J. M	49-Engr, NEC
	LARC/Stephens, D. G.	

NAS 5-22408 **Columbia University** **2797**
Reduction and analysis of data from OSO-I graphite crystal X-ray spectrometer and polarimeter experiment

Period	*Obligations*	
06/26/75-09/30/78	FY77 $152,520	TOTAL $647,520
Prin Invest	*NASA Tech Officer*	*CASE Category*
Novick, R.	GSFC/Gemmell, J.	31-Atmos Sci

NAS 5-22890 **Columbia University** **2798**
Studies of focusing Bragg polarimeter and conical Bragg crystal spectrometer for Spacelab/Shuttle missions

Period	*Obligations*	
02/19/76-12/17/76	FY77	TOTAL $49,799
Prin Invest	*NASA Tech Officer*	*CASE Category*
Novick, R.	GSFC/Laudadio, J. F	11-Astronomy

NAS 5-22936 **Columbia University** **2799**
Library support for Goddard Institute for Space Studies

Period	*Obligations*	
03/15/76-03/31/77	FY77 $25,000	TOTAL $62,210
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lewis, J. P.	GSFC/Jennings, N.	99-Multi-Discip

NAS 5-23623 **Columbia University** **2800**
Extreme ultraviolet and soft X-ray study

Period	*Obligations*	
06/21/76-03/31/77	FY77 $4,001	TOTAL $12,312
Prin Invest	*NASA Tech Officer*	*CASE Category*
Novick, R	GSFC/Weinreb, M. B	11-Astronomy

NAS 5-23727 **Columbia University** **2801**
Microprocessor utilization in search and rescue missions

Period	*Obligations*	
09/27/76-10/27/77	FY77	TOTAL $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schwartz, M	GSFC/Schmid, P. E	45-Elec Engr
Bashkow, T. R	GSFC/Martini, J. W	

NAS 5-24080 **Columbia University** **2802**
Technical service operations and materials for cataloging books and other material

Period	*Obligations*	
04/01/77-04/01/78	FY77 $25,000	TOTAL $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lewis, J. P	GSFC/Jennings, N.	99-Multi-Discip

NAS 5-24152 **Columbia University** **2803**
Data reduction and analysis of graphite crystal X-ray spectrometer OSO-I

Period 10/01/77-09/30/79 *Obligations* FY77: $100,000 TOTAL: $100,000
Prin. Invest. Novick, R
NASA Tech. Officer GSFC/Gemmell, J; GSFC/Kupperian, J. E., Jr.
CASE Category 31-Atmos. Sci.

NAS 6-2455 **Columbia University** **2804**
Mapping of ocean tides using GEOS-C data

Period 03/15/74-10/31/77 *Obligations* FY77: $31,640 TOTAL: $101,017
Prin. Invest. Kuo, J. T; Jachens, R. C.
NASA Tech. Officer WFC/Stanley, H. R.; WFC/Rossi, L. C.
CASE Category 33-Oceanography

NAS 6-2519 **Columbia University** **2805**
GEOS-C research

Period 10/16/74-04/30/78 *Obligations* FY77: $74,200 TOTAL: $283,517
Prin. Invest. Talwani, M.; Watts, A.
NASA Tech. Officer WFC/Stanley, H. R.; WFC/Rossi, L. C.
CASE Category 32-Geological Sci.

NAS 8-30753 **Columbia University** **2806**
Design, development and operation of the HEAO Mission B X-ray telescope experiment

Period 06/01/74-12/31/79 *Obligations* FY77: $56,600 TOTAL: $138,600
Prin. Invest. Novick, R; Angel, J. R; Kestenbaum, H. L.
NASA Tech. Officer MSFC/Manning, H. S.; MSFC/Power, J. A.
CASE Category 11-Astronomy

NAS 8-32212 **Columbia University** **2807**
Space vehicle control system

Period 09/01/76-06/30/78 *Obligations* FY77: $10,054 TOTAL: $10,054
Prin. Invest. Likins, P. W.
NASA Tech. Officer MSFC/Seltzer, S. M.; MSFC/Shelton, H. L.
CASE Category 19-Phys. Sci, NEC

NAS 9-14931 **Columbia University** **2808**
Study developed disuse osteoporosis in animals

Period 01/01/76-12/31/78 *Obligations* FY77: $50,000 TOTAL: $115,000
Prin. Invest. Bassett, C. A.
NASA Tech. Officer JSC/Rambaut, P. C.
CASE Category 53-Other Medical

NGR 33-008-102 **Columbia University** **2809**
Research in X-ray astronomy

Period 01/30/68-01/14/78 *Obligations* FY77: $200,000 TOTAL: $1,698,842
Prin. Invest. Novick, R; Weisskopf, M. C; Wolff, R. S.
NASA Tech. Officer GSFC/Bissell, F. L.; HQ-SA/Opp, A. G.
CASE Category 11-Astronomy

NGR 33-008-146 **Columbia University** **2810**
Study of strain buildup, release and earthquake prediction

Period 02/09/71-02/28/78 *Obligations* FY77: $40,727 TOTAL: $426,423
Prin. Invest. Scholz, C. H; Johnson, T. L.; Bilham, R. G
NASA Tech. Officer GSFC/Smith, D. E.
CASE Category 19-Phys. Sci, NEC

NGR 33-008-177 **Columbia University** **2811**
Lunar sample analysis

Period 11/01/72-01/31/78 *Obligations* FY77: $27,706 TOTAL: $105,041
Prin. Invest. Horai, K.
NASA Tech. Officer JSC/Harris, J. W.
CASE Category 13-Physics

NGR 33-008-183 **Columbia University** **2812**
Study of nonequilibrium conditions in active regions during solar flares

Period 07/01/73-10/31/76 *Obligations* FY77: TOTAL: $25,259
Prin. Invest. Wolff, R. S.
NASA Tech. Officer HQ-ST/Cauffman, D. P.
CASE Category 11-Astronomy

NGR 33-008-191 **Columbia University** **2813**
Multidisciplinary research in the space sciences

Period 02/15/73-04/30/77 *Obligations* FY77: $14,000 TOTAL: $1,751,796
Prin. Invest. Hartmann, S. R; Broecker, W. S.
NASA Tech. Officer GSFC/Thaddeus, P.
CASE Category 11-Astronomy

NGR 33-008-199 **Columbia University** **2814**
Petrological study of lithic clasts in Apollo 14 breccias. Determination of bulk chemistry and mineralogy as constraints on highlands petrogenesis and evolution

Period 02/01/74-01/31/78 *Obligations* FY77: $38,300 TOTAL: $185,122
Prin. Invest. Ridley, W. I.
NASA Tech. Officer JSC/Harris, J. W.
CASE Category 12-Chemistry

NSG 1115 **Columbia University** **2815**
Effects of aircraft noise on human response

Period 10/01/74-09/30/77 *Obligations* FY77: $83,110 TOTAL: $248,460
Prin. Invest. Galanter, I.
NASA Tech. Officer LARC/Cawthorn, J. M.; LARC/Stephens, D. G.
CASE Category 69-Psych, NEC

NSG 1164 **Columbia University** **2816**
Study of community annoyance with aircraft noise in the vicinity of JFK airport

Period 04/01/75-10/15/77 *Obligations* FY77: $164,153 TOTAL: $389,787
Prin. Invest. Borsky, P. N.
NASA Tech. Officer LARC/Powell, C. A.; LARC/Stephens, D. G.
CASE Category 49-Engr, NEC

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NSG 3050 **Columbia University** **2817**
Creep and stress rupture behavior of oxide dispersion strengthened super alloys

Period	*Obligations*	
06/01/75-09/30/78	FY77: $42,185	TOTAL: $116,549
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tien, J. K.	LERC/Glasgow, T. K.	47-Materials Engr

NSG 5072 **Columbia University** **2818**
Surface deformation and elasticity studies

Period	*Obligations*	
08/01/75-12/31/77	FY77: $26,972	TOTAL: $75,738
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bilham, R. G	GSFC/Allenby, R. J.	32-Geological Sci
	GSFC/Webster, W. J., Jr.	

NSG 5079 **Columbia University** **2819**
High spatial resolution study of extended X-ray sources using Copernicus satellite and sounding rockets observations

Period	*Obligations*	
09/01/75-02/28/77	FY77:	TOTAL: $9,909
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wolff, R. S.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5080 **Columbia University** **2820**
Application of LANDSAT data to agricultural resource problems

Period	*Obligations*	
08/15/75-11/30/77	FY77: $70,077	TOTAL: $144,363
Prin Invest	*NASA Tech Officer*	*CASE Category*
High, C. J.	GSFC/Ungar, S. G.	32-Geological Sci
Comer, J. C.		

NSG 5118 **Columbia University** **2821**
High resolution spectroscopy of variable X-ray sources

Period	*Obligations*	
06/01/76-05/31/77	FY77:	TOTAL: $7,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wolff, R. S.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5146 **Columbia University** **2822**
Research of instrumentation design parameters for solar X-ray

Period	*Obligations*	
12/01/76-11/30/78	FY77: $50,000	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Novick, R.	GSFC/Bissell, E. E.	13-Physics

NSG 5163 **Columbia University** **2823**
Multidisciplinary research in the space studies

Period	*Obligations*	
03/01/77-02/28/78	FY77: $438,026	TOTAL: $438,026
Prin Invest	*NASA Tech Officer*	*CASE Category*
Broecker, W. S.	GSFC/Thaddeus, P.	11-Astronomy
Happer, W., Jr.	GSFC/Hansen, J. E.	

NSG 5168 **Columbia University** **2824**
Simultaneous observations of the ultraviolet spectrum, the optical spectrum and the optical polarization of orionis

Period	*Obligations*	
04/01/77-03/31/78	FY77: $5,000	TOTAL: $5,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hayes, D. P.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5194 **Columbia University** **2825**
Simultaneous X-ray photometric and polarimetric observations of the Cygnus field

Period	*Obligations*	
08/01/77-07/31/78	FY77: $7,000	TOTAL: $7,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Novick, R.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5200 **Columbia University** **2826**
Sounding rocket-borne X-ray research of temporal and spectral features

Period	*Obligations*	
08/01/77-07/31/78	FY77: $4,000	TOTAL: $4,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Novick, R.	GSFC/Kupperian, J. E., Jr.	
Wolff, R. S.		11-Astronomy

NSG 7105 **Columbia University** **2827**
Calculation of collision cross sections of astrophysical interest

Period	*Obligations*	
12/01/74-11/30/77	FY77: $36,056	TOTAL: $106,056
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zare, R.	HQ-SA/Boggess, N. W.	11-Astronomy

NSG 7194 **Columbia University** **2828**
A critical study of constraints imposed by existing observational data

Period	*Obligations*	
02/01/76-01/31/78	FY77: $30,238	TOTAL: $68,855
Prin Invest	*NASA Tech Officer*	*CASE Category*
Langseth, M. G.	HQ-SL/Goldstein, B. F.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7200 **Columbia University** **2829**
Rare-earth element abundance studies in chondrite meteorites

Period	*Obligations*	
03/01/76-02/28/78	FY77: $80,843	TOTAL: $133,907
Prin Invest	*NASA Tech Officer*	*CASE Category*
ONions, R. K.	HQ-SL/French, B. M.	32-Geological Sci
Evensen, N. M.	HQ-SL/Flinn, E. A.	

NSG 7248 **Columbia University** **2830**
Detailed studies of time variability of the galactic X-ray sources Cygnus X-1 and Scorpius

Period	*Obligations*	
06/15/76-12/14/77	FY77:	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weisskopf, M. C	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NAS 1-9683 **Cornell University** **2831**
Participation in the science planning for the Viking 1975 missions in the area of imaging

Period	*Obligations*	
04/08/70-09/30/78	FY77: $76,171	TOTAL: $354,159
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sagan, C. E.	LARC/Williams, F. S., Jr.	
	LARC/Glenny, W. R.	99-Multi-Discip

NAS 5-20705 **Cornell University** **2832**
Theoretical investigation for atmospheric Explorer C, D & E missions

Period	*Obligations*	
08/19/74-11/19/77	FY77: $50,000	TOTAL: $132,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Walker, J. C.	GSFC/Findlay, J. A.	13-Physics

NAS 5-22586 **Cornell University** **2833**
Mission definition study of an astronomical satellite survey in the infrared

Period	*Obligations*	
06/15/75-04/30/77	FY77: $5,000	TOTAL: $17,237
Prin Invest	*NASA Tech Officer*	*CASE Category*
Houck, J. R.	GSFC/Hymowitz, E. W.	11-Astronomy
Forrest, W. J.		

NAS 5-23236 **Cornell University** **2834**
Feasibility study of infrared interferometer, spectrometer, & radiometer for Mariner/Jupiter 1977 launch

Period	*Obligations*	
05/01/73-10/31/81	FY77: $9,000	TOTAL: $35,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gierasch, P. J.	GSFC/Conrath, B. J.	13-Physics
	GSFC/Hanel, R. A.	

NAS 5-23785 **Cornell University** **2835**
Investigation of atmospheric planetary dynamics

Period	*Obligations*	
10/27/76-10/26/78	FY77: $12,000	TOTAL: $12,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gierasch, P. J.	GSFC/Pirraglia, J. A.	31-Atmos Sci

NAS 9-15378 **Cornell University** **2836**
Lymphocyte microelectrophoresis

Period	*Obligations*	
07/28/77-12/31/77	FY77: $75,000	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rubin, A. I.	JSC/Morrison, D. R.	59-Life Sci, NEC

NASW 2750 **Cornell University** **2837**
Control elements for an unmanned Martian roving vehicle

Period	*Obligations*	
09/01/74-08/31/75	FY77	TOTAL: $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wehe, R. L.	HQ-SL/Tarver, P.	49-Engr, NEC
Osborn, R. E.	HQ-SL/Herman, D. H.	

NCA 2-175701 **Cornell University** **2838**
Dynamical studies of planetary satellites. Capture of the outer Jovian satellites and the tidal acceleration of Phobos

Period	*Obligations*	
01/01/77-12/31/77	FY77: $5,889	TOTAL: $5,889
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burns, J. A.	ARC/Pollack, J. B.	11-Astronomy

NCA 2-175702 **Cornell University** **2839**
Early climate on earth-reduced gas models and early climate on Mars-reduced gas and obliquity models

Period	*Obligations*	
05/22/77-05/22/78	FY77: $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Toon, O. B.	ARC/Pollack, J. B.	39-Env Sci, NEC
Sagan, C. E.		

NCA 2-175703 **Cornell University** **2840**
Development of a design for a low-background focal plane tester

Period	*Obligations*	
04/01/77-08/01/77	FY77: $10,423	TOTAL: $10,423
Prin Invest	*NASA Tech Officer*	*CASE Category*
Houck, J. R.	ARC/McCreight, C. R.	42-Aero Engr

NGL 33-010-062 **Cornell University** **2841**
The study of lunar and planetary surfaces and atmospheres

Period	*Obligations*	
09/23/68-08/31/79	FY77: $70,000	TOTAL: $628,718
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sagan, C. E.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

NGL 33-010-171 **Cornell University** **2842**
A program in remote sensing

Period	*Obligations*	
02/14/72-05/31/80	FY77: $100,000	TOTAL: $700,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ttang, T.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NGL 33-010-186 **Cornell University** **2843**
Studies of thermal structure and motion of planetary atmospheres

Period	*Obligations*	
04/18/73-06/14/79	FY77	TOTAL: $163,460
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gierasch, P. J.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

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NGR 33-010-081 **Cornell University** **2844**
Two to four micron spectroscopy of Mars

Period	Obligations	
03/01/73-08/31/78	FY77 $15,000	TOTAL $210,897

Prin Invest	NASA Tech Officer	CASE Category
Houck, J R	ARC/Gillespie, C. M., Jr.	11-Astronomy
	ARC/Cameron, R. M.	

NGR 33-010-101 **Cornell University** **2845**
An integrated program in exobiology and problems related to origin of life

Period	Obligations	
10/09/69-09/30/77	FY77 $80,000	TOTAL $619,945

Prin Invest	NASA Tech Officer	CASE Category
Sagan, C F	HQ-SB/Young, R S.	12-Chemistry
Khare, B N.		

NGR 33-010-108 **Cornell University** **2846**
Implications of convection within the moon

Period	Obligations	
05/18/70-01/31/78	FY77 $25,392	TOTAL $144,220

Prin Invest	NASA Tech Officer	CASE Category
Turcotte, D L.	HQ-SL/Goldstein, B E	
	HQ-SL/Quaide, W L	32-Geological Sci

NGR 33-010-137 **Cornell University** **2847**
Lunar sample analysis

Period	Obligations	
02/12/71-01/31/78	FY77 $55,000	TOTAL $311,773

Prin Invest	NASA Tech Officer	CASE Category
Gold, T	JSC/Harris, J W	13-Physics

NGR 33-010-145 **Cornell University** **2848**
Cosmic gamma-ray telescope

Period	Obligations	
01/06/71-01/31/76	FY77	TOTAL $258,300

Prin Invest	NASA Tech Officer	CASE Category
Greisen, K I.	HQ-SA/Opp, A G	11-Astronomy

NGR 33-010-146 **Cornell University** **2849**
Submillimeter astronomical spectrometry from aircraft

Period	Obligations	
02/16/72-10/31/77	FY77 $54,740	TOTAL $205,554

Prin Invest	NASA Tech Officer	CASE Category
Harwit, M O	ARC/Cameron, R M	11-Astronomy
	ARC/Mason, R H	

NGR 33-010-161 **Cornell University** **2850**
Studies of the magnetospheres of Earth and Jupiter

Period	Obligations	
01/18/72-06/30/78	FY77	TOTAL $177,790

Prin Invest	NASA Tech Officer	CASE Category
Farley, D T	HQ-SL/Cauffman, D P	13-Physics
	HQ-SL/Schmerling, E R	

NGR 33-010-172 **Cornell University** **2851**
Research in a multiband far infrared surface with a balloon-borne telescope

Period	Obligations	
11/20/72-02/19/78	FY77: $30,000	TOTAL $234,517

Prin Invest	NASA Tech Officer	CASE Category
Harwit, M. O.	HQ-SA/Boggess, N. W	11-Astronomy
	HQ-SA/Roman, N. G	

NGR 33-010-178 **Cornell University** **2852**
Analysis of Apollo 12 and Explorer 35 magnetometer data

Period	Obligations	
06/13/72-01/31/77	FY77	TOTAL: $107,743

Prin Invest	NASA Tech Officer	CASE Category
Kuckes, A F	HQ-SL/Williams, R J	32-Geological Sci
	HQ-SL/Flinn, L. A.	

NGR 33-010-182 **Cornell University** **2853**
Sixteen to forty micron spectroscopy of Jupiter

Period	Obligations	
12/20/72-10/31/77	FY77, $47,000	TOTAL $200,084

Prin Invest	NASA Tech Officer	CASE Category
Houck, J R	ARC/Cameron, R M.	11-Astronomy
Forrest, W J.	ARC/Mason, R. H.	

NGR 33-010-188 **Cornell University** **2854**
Astrophysical material science theory

Period	Obligations	
08/01/72-09/30/77	FY77 $52,000	TOTAL $192,371

Prin Invest	NASA Tech Officer	CASE Category
Krumhansl, J. A	LERC/Flood, D. J	13-Physics
Ashcroft, N W.		

NGR 33-010-189 **Cornell University** **2855**
Ultra pressure materials science

Period	Obligations	
08/01/75-09/30/77	FY77 $130,000	TOTAL $541,000

Prin Invest	NASA Tech Officer	CASE Category
Ruoff, A L	LERC/Aron, P R	47-Materials Engr
Ashcroft, N W		

NGR 33-010-220 **Cornell University** **2856**
Interdisciplinary investigations of Mariner 9 data

Period	Obligations	
12/05/73-09/30/77	FY77 $41,249	TOTAL $209,750

Prin Invest	NASA Tech Officer	CASE Category
Sagan, C E	HQ-SL/Dwornik, S E	32-Geological Sci
	HQ-SL/Wahmann, R	

NSG 1263 **Cornell University** **2857**
Noise and systematic errors common to many Hadamard transform optical systems

Period	Obligations	
12/01/75-11/30/77	FY77	TOTAL $19,961

Prin Invest	NASA Tech Officer	CASE Category
Harwit, M O	LARC/Jobson, D J	13-Physics

NSG 1365 **Cornell University** **2858**
The balance equation as a diagnostic tool for detecting the initiation of the multiscale energy cascade

Period	Obligations	
12/01/76-01/31/78	FY77: $29,268	TOTAL: $29,268
Prin Invest	*NASA Tech Officer*	*CASE Category*
Paine, D. A.	LARC/Costen, R. C. LARC/Young, G. R	31-Atmos Sci

NSG 1371 **Cornell University** **2859**
Collision dynamics with high energy oxygen atoms

Period	Obligations	
12/01/76-11/30/77	FY77: $17,500	TOTAL: $17,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Merrill, R. P.	LARC/Outlaw, R. A. LARC/Melfi, L. T., Jr.	47-Materials Engr

NSG 2078 **Cornell University** **2860**
Structural characterization of hydrogen attack

Period	Obligations	
04/01/75-03/31/78	FY77: $35,000	TOTAL: $99,509
Prin Invest	*NASA Tech Officer*	*CASE Category*
Johnson, H. H.	ARC/Nelson, H. G.	47-Materials Engr

NSG 2174 **Cornell University** **2861**
Opportunity occultation studies of planets, satellites and asteroids

Period	Obligations	
09/01/76-08/31/78	FY77: $60,585	TOTAL: $102,085
Prin Invest	*NASA Tech Officer*	*CASE Category*
Elliot, J. L.	ARC/Gillespie, C. M., Jr. ARC/Cameron, R. M.	11-Astronomy

NSG 3019 **Cornell University** **2862**
Flow processes in combusters

Period	Obligations	
07/01/74-06/30/78	FY77: $86,092	TOTAL: $300,697
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gouldin, F. C. Leibovich, S. McLean, W. J.	LERC/Marek, C. J LERC/Diehl, L.	41-Aero Engr

NSG 3080 **Cornell University** **2863**
Theoretical analysis of impact of composite plates

Period	Obligations	
09/01/75-12/31/76	FY77:	TOTAL: $29,439
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moon, F. C.	LERC/Chamis, C. C.	41-Aero Engr

NSG 5060 **Cornell University** **2864**
Comparison between calculated gravity anomalies for dynamic processes in the mantle and observations

Period	Obligations	
04/01/75-03/31/78	FY77: $30,000	TOTAL: $90,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Turcotte, D. L.	GSFC/Smith, D. E.	32-Geological Sci

NSG 7126 **Cornell University** **2865**
High spatial resolution multicolor observation of Neptune during occultation by the moon

Period	Obligations	
01/01/75-09/30/77	FY77: $30,310	TOTAL: $75,728
Prin Invest	*NASA Tech Officer*	*CASE Category*
Veverka, J.	HQ-SL/Brunk, W. E. HQ-SL/Fellows, R. F.	11-Astronomy

NSG 7156 **Cornell University** **2866**
Physical studies of planetary surfaces

Period	Obligations	
07/01/75-09/30/77	FY77: $27,000	TOTAL: $59,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Veverka, J.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci

NSG 7235 **Cornell University** **2867**
Light-induced amino acid transport by envelope vesicles of halobacterium halobium cells

Period	Obligations	
03/01/76-03/14/78	FY77: $33,500	TOTAL: $67,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
MacDonald, R. E.	HQ-SB/Young, R. S.	51-Biology

NSG 7243 **Cornell University** **2868**
Occultation studies of planets and satellites The occultation of a geminorum by Mars

Period	Obligations	
02/01/76-09/30/76	FY77:	TOTAL: $16,420
Prin Invest	*NASA Tech Officer*	*CASE Category*
Elliot, J. L.	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NSG 7268 **Cornell University** **2869**
Gravitational time delay in orthogonally polarized radiation passing by the sun

Period	Obligations	
09/01/76-08/31/77	FY77:	TOTAL: $19,980
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harwit, M. O.	HQ-SL/Kochendorfer, F. D. HQ-SA/Opp, A. G.	32-Geological Sci

NSG 7314 **Cornell University** **2870**
Beryometer system

Period	Obligations	
04/01/77-05/31/78	FY77: $29,900	TOTAL: $29,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Houck, J. R.	HQ-SA/Boggess, N. W. HQ-SA/Roman, N. G.	11-Astronomy

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NSG 7348 **Cornell University** **2871**
Analysis of erosion and transportation features from lunar orbiter and Apollo photography

Period	Obligations	
06/15/77-07/31/78	FY77: $23,000	TOTAL: $23,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gold, T.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NAS 8-31513 **Cornell University - Medical Center** **2872**
Separation of lymphocytes by electrophoresis under terrestrial conditions and at zero gravity

Period	Obligations	
06/05/75-01/04/77	FY77:	TOTAL: $72,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rubin, A. L.	MSFC/Nerren, B. H.	99-Multi-Discip
Stenzel, K. H.	MSFC/Allen, R. E.	

NSG 2259 **Cornell University - Medical Center** **2873**
Central neural and neurochemical mechanisms subserving postural cardiovascular changes

Period	Obligations	
10/01/77-09/30/78	FY77: $50,000	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reis, D. J.	ARC/Danellis, J. V.	59-Life Sci, NEC

NGR 33-209-002 **Hofstra University** **2874**
Radar studies and application of measurements of ocean wave height and distinctive spectrum

Period	Obligations	
03/28/72-01/31/78	FY77: $22,704	TOTAL: $87,145
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weissman, D. E.	LARC/Swift, C. T.	45-Elec Engr

NAS 2-7963 **New York University** **2875**
Pioneer F/G data analysis of zodiacal light experiment

Period	Obligations	
01/04/74-12/31/77	FY77: $36,755	TOTAL: $378,756
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinberg, J. L.	ARC/Hall, C. F.	11-Astronomy
	ARC/Porter, D. L.	

NGL 33-016-119 **New York University** **2876**
Engine effect on sonic boom, unsteady engine inlet interaction

Period	Obligations	
06/05/67-10/31/77	FY77: $7,000	TOTAL: $592,649
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ting, L.	LARC/Darden, C. M.	41-Aero Engr
Kung, F.	LARC/Carlson, H. W.	

NGR 33-016-131 **New York University** **2877**
Hypersonic engine airplane integration

Period	Obligations	
02/27/68-10/31/78	FY77: $121,929	TOTAL: $1,196,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Agnone, A. M.	LARC/Huber, P. W.	41-Aero Engr
	LARC/Anderson, G. Y.	

NGR 33-016-167 **New York University** **2878**
Numerical design of transonic shockless airfoils

Period	Obligations	
10/01/70-11/30/77	FY77: $80,000	TOTAL: $615,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garabedian, P. R.	LARC/South, J. C., Jr.	21-Mathematics

NGR 33-016-196 **New York University** **2879**
Physical properties of molecular clouds

Period	Obligations	
09/01/73-10/31/77	FY77: $30,000	TOTAL: $100,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Glassgold, A. E.	HQ-SA/Rosendahl, J. D.	13-Physics
	HQ-SA/Roman, N. G.	

NGR 33-016-201 **New York University** **2880**
Study of transonic flow over yawed wings

Period	Obligations	
05/29/73-11/01/77	FY77: $34,127	TOTAL: $203,127
Prin Invest	*NASA Tech Officer*	*CASE Category*
Garabedian, P. R.	ARC/Hicks, R. M.	41-Aero Engr
Jameson, A.	ARC/Malcolm, G. N.	

NSG 1298 **New York University** **2881**
Definition of future SST required pollution characteristics as a function of fuel use, flight Mach number and altitude

Period	Obligations	
04/01/76-10/31/77	FY77: $29,442	TOTAL: $49,192
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hoffert, M. I.	LARC/McLean, F. E.	39-Env Sci, NEC

NSG 1444 **New York University** **2882**
An experimental and analytical investigation of the aerodynamics of a hypersonic vehicle

Period	Obligations	
08/01/77-07/31/78	FY77: $97,987	TOTAL: $97,987
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zakkay, V.	LARC/Edwards, C. L.	41-Aero Engr
Wang, C. R.	LARC/Johnston, P. J.	

NSG 3059 **New York University** **2883**
Analysis of experiments on hydrodynamics instability in the absence of gravity

Period	Obligations	
06/01/75-05/31/78	FY77: $15,000	TOTAL: $56,614
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keller, J. B.	LERC/LaBus, T. L.	49-Engr, NEC
Ting, L.		

NSG 5032 **New York University** **2884**
Optimization and machine independence of programming languages

Period	Obligations	
12/01/74-11/30/77	FY77: $32,322	TOTAL: $96,832
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schwartz, J. T.	GSFC/Schneck, P. B.	13-Physics
	GSFC/DesJardins, R.	

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NSG 5034 **New York University** **2885**
Research program in climatology and meteorology

Period	Obligations	
01/01/75-12/31/77	FY77: $62,000	TOTAL: $190,500

Prin Invest	NASA Tech Officer	CASE Category
Isaacson, E. Stoker, J. J., Jr.	GSFC/Halem, M.	31-Atmos Sci

NSG 5045 **New York University** **2886**
Investigation of the planetary boundary layer in relation to large scale atmospheric dynamics

Period	Obligations	
01/01/75-01/31/78	FY77: $49,154	TOTAL: $99,154

Prin Invest	NASA Tech Officer	CASE Category
Hoffert, M. I.	GSFC/Halem, M.	31-Atmos Sci

NSG 5130 **New York University** **2887**
Short term numerical weather prediction and very long term climate modelling

Period	Obligations	
10/01/76-09/30/79	FY77: $80,196	TOTAL: $80,196

Prin Invest	NASA Tech Officer	CASE Category
Isaacson, E. Stoker, J. J., Jr.	GSFC/Halem, M.	31-Atmos Sci

NSG 5133 **New York University** **2888**
Air/sea interaction analysis applied to SEASAT data algorithm

Period	Obligations	
10/01/76-11/30/77	FY77 $48,094	TOTAL: $48,094

Prin Invest	NASA Tech Officer	CASE Category
Hoffert, M. I.	GSFC/Halem, M.	39-Env Sci, NEC

NSG 7116 **New York University** **2889**
A study of solar-interplanetary relationship using galactic cosmic ray decreases

Period	Obligations	
03/01/75-02/29/76	FY77	TOTAL $15,000

Prin Invest	NASA Tech Officer	CASE Category
Korff, S. A.	HQ-SA/Lazarus, A. J. HQ-SA/Opp, A. G.	11-Astronomy

NSG 7169 **New York University** **2890**
Study of the economic impact of space exploration

Period	Obligations	
10/01/75-09/30/77	FY77.	TOTAL: $25,630

Prin Invest	NASA Tech Officer	CASE Category
Morgenstern, O.	HQ-K/Gray, E. Z.	72-Economics

NAS 5-24086 **Polytechnic Institute of New York** **2891**
Wave propagation study

Period	Obligation	
03/07/77-03/07/78	FY77 $15,000	TOTAL: $15,000

Prin Invest	NASA Tech Officer	CASE Category
Gross, S. H	GSFC/Pirraglia, J. A	31-Atmos Sci

NGR 33-006-047 **Polytechnic Institute of New York** **2892**
Investigation of diffraction by planetary atmospheres

Period	Obligations	
03/25/68-03/31/77	FY77: $14,000	TOTAL: $206,509

Prin Invest	NASA Tech Officer	CASE Category
Gross, S. H.	HQ-ST/Taylor, W. W HQ-ST/Schmerling, E. R.	13-Physics

NGR 33-006-068 **Polytechnic Institute of New York** **2893**
Study of escape of gases from comets, planets, and satellites

Period	Obligations	
12/26/72-12/31/77	FY77: $38,522	TOTAL: $156,286

Prin Invest	NASA Tech Officer	CASE Category
Gross, S. H	HQ-SL/Fellows, R. F. HQ-SL/Brunk, W. E.	31-Atmos Sci

NGR 33-006-070 **Polytechnic Institute of New York** **2894**
Synthesis of polypeptides, sugar phosphates and polynucleotides from intermediates under simulated conditions

Period	Obligations	
04/26/73-06/14/78	FY77: $46,500	TOTAL: $223,448

Prin Invest	NASA Tech Officer	CASE Category
Eirich, F. R.	HQ-SB/Young, R. S	12-Chemistry

NSG 1198 **Polytechnic Institute of New York** **2895**
Applicability of Brillouin scattering to flow field diagnostics

Period	Obligations	
07/01/75-07/31/78	FY77 $29,369	TOTAL: $77,243

Prin Invest	NASA Tech Officer	CASE Category
Lederman, S.	LARC/Hoppe, J. C. LARC/Hunter, W. W	42-Astro Engr

NSG 1244 **Polytechnic Institute of New York** **2896**
Spline collocation for viscous flow

Period	Obligations	
10/01/75-10/31/77	FY77	TOTAL: $27,291

Prin Invest	NASA Tech Officer	CASE Category
Rubin, S. G.	LARC/Rudy, D. H LARC/Harris, J. E.	41-Aero Engr

NSG 1248 **Polytechnic Institute of New York** **2897**
Extended conformal mappings for supersonic aircraft calculations

Period	Obligations	
10/01/75-10/31/77	FY77	TOTAL: $97,990

Prin Invest	NASA Tech Officer	CASE Category
Moretti, G.	LARC/Salas, M. D	41-Aero Engr

NSG 1300 **Polytechnic Institute of New York** **2898**
Wing body aerodynamic interference investigation

Period	Obligations	
04/01/76-09/30/77	FY77	TOTAL: $29,942

Prin Invest	NASA Tech Officer	CASE Category
Krenkel, A. R.	LARC/Morgan, H. L., Jr LARC/Thomas, J. L.	41-Aero Engr

NSG 2147 **Polytechnic Institute of New York** **2899**
Exploratory synthesis of new fire safe polymeric materials

Period *Obligations*
05/01/76-05/31/78 FY77: $101,533 TOTAL: $141,481

Prin Invest *NASA Tech Officer* *CASE Category*
Pearce, F. M ARC/Foulen, G. M. 12-Chemistry
ARC/Parker, J. A.

NSG 2182 **Polytechnic Institute of New York** **2900**
The stability of new transparent polymeric materials

Period *Obligations*
09/01/76-08/31/78 FY77: $11,954 TOTAL: $23,447

Prin Invest *NASA Tech Officer* *CASE Category*
Pearce, F. M ARC/Ricciello, S. R 12-Chemistry
ARC/Parker, J. A

NSG 3108 **Polytechnic Institute of New York** **2901**
Application of Raman diagnostics to combustion

Period *Obligations*
06/01/76-05/31/79 FY77: TOTAL: $47,987

Prin Invest *NASA Tech Officer* *CASE Category*
Lederman, S LERC/Will, H. A 13-Physics

NSG 7321 **Queens College** **2902**
Phase stability and elastic wave velocity determinations for stoichiometric FeS

Period *Obligations*
02/01/77-01/31/78 FY77: $74,578 TOTAL: $74,578

Prin Invest *NASA Tech Officer* *CASE Category*
Takahashi, T HQ-SL/Goldstein, B. E
HQ-SL/Quaide, W. L 32-Geological Sci

NAS 8-26146 **Rensselaer Polytechnic Institute** **2903**
Growth of single crystals by vapor transport in zero gravity environment

Period *Obligations*
06/04/70-10/06/78 FY77: $59,000 TOTAL: $262,000

Prin Invest *NASA Tech Officer* *CASE Category*
Wiedmann, H MSFC/Davidson, M. C
MSFC/Thomas, P. J 47-Materials Engr

NAS 8-28307 **Rensselaer Polytechnic Institute** **2904**
Vapor growth of II-VI compounds

Period *Obligations*
10/11/72-10/15/75 FY77: TOTAL: $50,000

Prin Invest *NASA Tech Officer* *CASE Category*
Wiedemeier, H MSFC/Adams, W. R 19-Phys Sci, NEC
MSFC/Davidson, M. C

NAS 8-30578 **Rensselaer Polytechnic Institute** **2905**
Crystal growth from vapor phase in zero environment

Period *Obligations*
01/11/74-03/31/76 FY77: TOTAL: $72,000

Prin Invest *NASA Tech Officer* *CASE Category*
Wiedemeier, H MSFC/Adams, W. R 19-Phys Sci, NEC
MSFC/Boese, A

NAS 8-32425 **Rensselaer Polytechnic Institute** **2906**
Dentritic solidification at small supercooling

Period *Obligations*
03/01/77-02/28/78 FY77: $59,000 TOTAL: $59,000

Prin Invest *NASA Tech Officer* *CASE Category*
Glicksman, M. E. MSFC/Reeves, E. A. 47-Materials Engr

NAS 8-32639 **Rensselaer Polytechnic Institute** **2907**
Space processing crystal growth from the vapor phase

Period *Obligations*
09/20/77-09/19/78 FY77: $37,689 TOTAL: $37,689

Prin Invest *NASA Tech Officer* *CASE Category*
Wiedemeier, H. MSFC/Davidson, M. C
MSFC/Thomas, P. J 19-Phys Sci, NEC

NAS 9-15109 **Rensselaer Polytechnic Institute** **2908**
Determination of radiative exchange factors for three-dimensional configuration with non-diffuse, non-gray surfaces

Period *Obligations*
07/01/76-12/31/77 FY77: $7,500 TOTAL: $22,900

Prin Invest *NASA Tech Officer* *CASE Category*
Modest, M. F. JSC/Kuznetz, L. H. 47-Materials Engr

NGL 33-018-003 **Rensselaer Polytechnic Institute** **2909**
Interdisciplinary materials research including fundamental physics & chemistry of materials, environmental effects, and related problems

Period *Obligations*
09/01/70-04/30/80 FY77: $500,000 TOTAL: $4,909,400

Prin Invest *NASA Tech Officer* *CASE Category*
Wiberly, S. E HQ-RW/Salkind, M. J
Ansell, G. S 47-Materials Engr
HQ-RW/Deutsch, G. C

NGL 33-018-007 **Rensselaer Polytechnic Institute** **2910**
Investigation of composition & chemical behavior of atmosphere of Venus

Period *Obligations*
06/19/62-08/31/80 FY77: $98,185 TOTAL: $1,487,400

Prin Invest *NASA Tech Officer* *CASE Category*
Harteck, P HQ-SL/Fellows, R. E 31-Atmos Sci
HQ-SL/Brunk, W. E

NGL 33-018-091 **Rensselaer Polytechnic Institute** **2911**
Analysis and design of a capsule landing system and surface vehicle control system for Mars exploration

Period *Obligations*
06/14/67-10/31/77 FY77: TOTAL: $815,000

Prin Invest *NASA Tech Officer* *CASE Category*
Yerazunis, S. W HQ-SL/Tarver, P 49-Engr, NEC
HQ-SL/Herman, D. H

NGR 33-018-148 **Rensselaer Polytechnic Institute** **2912**
Photochemical investigations of the atmosphere of other planets

Period	*Obligations*	
08/27/70-10/31/77	FY77: $41,000	TOTAL: $255,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ferris, J. P	HQ-SB/Young, R. S	12-Chemistry

NGR 33-018-188 **Rensselaer Polytechnic Institute** **2913**
Design & analysis of communication subsystem for planetary entry missions

Period	*Obligations*	
04/26/73-12/01/77	FY77: $15,000	TOTAL: $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Modestino, J. W.	ARC/Grant, T. L.	45-Elec Engr

NSG 1360 **Rensselaer Polytechnic Institute** **2914**
Generation of stable high secondary electron yield surfaces by ion implantation for electron multiplier and P-N junctions for mass spectrometric instruments

Period	*Obligations*	
12/01/76-11/30/77	FY77: $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
White, F. A	LARC/Wood, G. M.	13-Physics

NSG 1384 **Rensselaer Polytechnic Institute** **2915**
Reduced state feedback gain computation

Period	*Obligations*	
02/01/77-01/31/78	FY77: $32,800	TOTAL: $32,800
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaufman, H.	LARC/Adams, W. M., Jr. LARC/Hood, R. V., Jr	41-Aero Engr

NSG 3007 **Rensselaer Polytechnic Institute** **2916**
Relationship between boron fiber properties and its use in composites

Period	*Obligations*	
06/01/74-06/30/77	FY77:	TOTAL: $105,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Diefendorf, R. J	LERC/Grimes, H. H	47-Materials Engr

NSG 7065 **Rensselaer Polytechnic Institute** **2917**
Structure-function studies on bacillus stearothermophilus

Period	*Obligations*	
06/01/74-05/31/78	FY77: $22,000	TOTAL: $96,512
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wedler, F. C	HQ-SB/Young, R. S.	51-Biology

NSG 7184 **Rensselaer Polytechnic Institute** **2918**
Data acquisition and path selection decision making for an autonomous roving vehicle

Period	*Obligations*	
11/01/75-12/30/77	FY77: $35,000	TOTAL: $65,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shen, C. N Yerazunis, S. W	HQ-RE/Gevarter, W. B. JPL/Paine, G.	19-Phys Sci, NEC

NSG 7345 **Rensselaer Polytechnic Institute** **2919**
Biological adaptation to low temperature. A study of the molecular mechanism governing the responses of the protein synthesizing apparatuses to low temperature

Period	*Obligations*	
04/01/77-03/31/78	FY77: $35,000	TOTAL: $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pope, D. H.	HQ-SB/Young, R. S.	51-Biology

NSG 7369 **Rensselaer Polytechnic Institute** **2920**
Autonomous control of roving vehicles for unmanned exploration of the planets

Period	*Obligations*	
06/01/77-05/31/78	FY77: $40,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yerazunis, S. W. Frederick, D. K Gisser, D. G.	HQ-RE/Gevarter, W. B. JPL/Paine, G.	49-Engr, NEC

NSG 3072 **Rochester Institute of Technology** **2921**
Development of flexible rotor balancing criteria

Period	*Obligations*	
07/01/75-06/30/76	FY77	TOTAL: $31,783
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rieger, N. F. Walter, W. W.	LERC/Anderson, W. J LERC/Fleming, D. P	46-Mech Engr

NAS 5-24094 **State Univ of New York - Albany** **2922**
Compilation of global tectonic maps

Period	*Obligations*	
03/18/77-03/17/78	FY77: $23,140	TOTAL: $23,140
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burke, K Delong, S. E	GSFC/Frey, H. V. GSFC/Lowman, P. D.	32-Geological Sci

NAS 8-31902 **State Univ of New York - Albany** **2923**
Preliminary study of contaminan, particulates around Skylab

Period	*Obligations*	
02/01/76-06/30/76	FY77:	TOTAL: $18,343
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schuerman, D. W	MSFC/Weinb rg, J. L MSFC/Clifton, S	39-Env Sci, NEC

NAS 8-32485 **State Univ of New York - Albany** **2924**
Skylab contamination results experiments

Period	*Obligations*	
06/16/77-12/15/77	FY77: $13,900	TOTAL: $13,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schuerman, D. W	MSFC/Clifton, K. S MSFC/Shriver, E. L.	31-Atmos Sci

NAS 9-15365 **State Univ of New York - Albany** **2925**
Assessment of pancreatic cells

Period	*Obligations*	
07/01/77-02/28/78	FY77: $9,326	TOTAL: $9,326
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanOss, C. J	JSC/Morrison, D. R	59-Life Sci, NEC

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NSG 3095 **State Univ of New York - Albany** **2926**
Fundamentals of radiation tolerance in silicon solar cells

Period	*Obligations*	
01/26/76-01/25/78	FY77: $40,000	TOTAL: $65,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Corbett, J. W	LERC/Weinberg, I	39-Env Sci NEC
Cheng, L. J.		

NSG 3138 **State Univ of New York - Albany** **2927**
Analysis of global air sampling program data

Period	*Obligations*	
01/10/77-01/09/78	FY77: $74,860	TOTAL: $74,860
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mohnen, V. A.	LERC/Holdeman, J. D	31-Atmos Sci
Hogan, A. W.	LERC/Lezberg, E. A.	
Falconer, P. D		

NSG 7093 **State Univ of New York - Albany** **2928**
Photoelectric studies of the night glow

Period	*Obligations*	
12/23/74-09/31/77	FY77: $45,053	TOTAL: $122,510
Prin Invest	*NASA Tech Officer*	*CASE Category*
Phillips, O. M	HQ-SL/Donn, B. D	31-Atmos Sci
	HQ-SL/Brunk, W. E	

NSG 7222 **State Univ of New York - Albany** **2929**
Two-dimensional transport and aerosol model

Period	*Obligations*	
02/01/76-01/31/78	FY77: $32,560	TOTAL: $77,560
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kiang, C. S.	HQ-SU/Greenwood, L. R.	31-Atmos Sci
Mohnen, V. A.	HQ-SU/Tilford, S. G.	

NSG 7230 **State Univ of New York - Albany** **2930**
Extinction and the atmospheric aerosol

Period	*Obligations*	
03/01/76-09/30/76	FY77:	TOTAL: $14,133
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinberg, J. L.	HQ-SU/King, J., Jr.	31-Atmos Sci
Schuerman, D. W.	HQ-SU/Reed, E. I.	

NSG 7241 **State Univ of New York - Albany** **2931**
Studies of background starlight

Period	*Obligations*	
07/01/76-06/30/78	FY77: $16,000	TOTAL: $41,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinberg, J. L.	HQ-SA/Roman, N. G.	11-Astronomy
	HQ-SA/Rosendhal, J. D.	

NSG 7353 **State Univ of New York - Albany** **2932**
Microwave analogue studies of light scattering by small particles

Period	*Obligations*	
04/01/77-05/31/78	FY77: $9,979	TOTAL: $9,979
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schuerman, D. W.	HQ-SL/Donn, B. D.	11-Astronomy
	HQ-SL/Brunk, W. E.	

NSG 8040 **State Univ of New York - Albany** **2933**
Research study of data analysis, Skylab zodiacal light experiment

Period	*Obligations*	
06/28/76-04/01/78	FY77: $40,000	TOTAL: $88,594
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, W. H.	MSFC/Gary, G. A.	11-Astronomy

NSG 9028 **State Univ of New York - Albany** **2934**
Non-invasive technique for measurement of cardiac output for space shuttle use

Period	*Obligations*	
05/30/75-06/08/78	FY77: $39,730	TOTAL: $137,950
Prin Invest	*NASA Tech Officer*	*CASE Category*
Farhi, L. E.	JSC/Rummel, J. A.	51-Biology

NAS 8-31953 **State Univ of New York - Buffalo** **2935**
Study of chromatographic separation processes under zero-gravity conditions

Period	*Obligations*	
07/30/76-11/30/77	FY77: $7,253	TOTAL: $37,253
Prin Invest	*NASA Tech Officer*	*CASE Category*
Grusha, E.	MSFC/Nerren, B. H.	12-Chemistry
	MSFC/Ives, R. L.	

NGL 33-183-013 **State Univ of New York - Buffalo** **2936**
Lunar sample analysis

Period	*Obligations*	
02/01/73-08/31/77	FY77:	TOTAL: $78,238
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cadenhead, D. A.	JSC/Harris, J. W.	12-Chemistry

NGR 33-015-108 **State Univ of New York - Buffalo** **2937**
Planetary curriculum and related geologic research

Period	*Obligations*	
06/02/70-01/31/78	FY77: $56,540	TOTAL: $240,213
Prin Invest	*NASA Tech Officer*	*CASE Category*
King, J. S.	HQ-SL/Dwornik, S. E.	32-Geological Sci
	HQ-SL/Wahmann, R.	

NSG 7071 **State Univ of New York - Buffalo** **2938**
Experimental and theoretical investigation for the suppression of plasma arc drops in thermionic converters

Period	*Obligations*	
07/01/74-04/15/78	FY77: $40,000	TOTAL: $250,928
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shaw, D. T.	LERC/Morris, J. F.	13-Physics

NAS 1-10493 **State Univ of New York - Stony Brook** **2939**
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis

Period	*Obligations*	
01/18/71-09/30/78	FY77: $40,682	TOTAL: $182,288
Prin Invest	*NASA Tech Officer*	*CASE Category*
Owens, T.	LARC/Williams, T. S., Jr.	
	LARC/Glenny, W. R.	39-Env Sci, NEC

NAS 2-8986 **State Univ of New York - Stony Brook** **2940**
Study of cells and embryogenesis in space

Period	Obligations	
08/07/75-03/01/77	FY77:	TOTAL: $67,259
Prin Invest	*NASA Tech Officer*	*CASE Category*
Steward, F. C.	ARC/Tremor, J. W	51-Biology
Krikorian, A. D.	ARC/Taketa, S. T.	

NCA 2-760601 **State Univ of New York - Stony Brook** **2941**
Laboratory spectroscopy at ultralong pathlengths

Period	Obligations	
03/01/76-09/30/77	FY77:	TOTAL: $19,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lutz, B. L.	ARC/Boese, R. W	13-Physics

NGL 33-015-130 **State Univ of New York - Stony Brook** **2942**
Lunar sample analysis

Period	Obligations	
02/11/71-01/31/80	FY77: $85,100	TOTAL: $824,165
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bence, A. E.	JSC/Harris, J. W	13-Physics

NGL 33-015-174 **State Univ of New York - Stony Brook** **2943**
Lunar sample analysis

Period	Obligations	
02/01/73-01/31/78	FY77: $94,500	TOTAL: $427,156
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schaeffer, O. A.	JSC/Harris, J. W	12-Chemistry

NGR 33-015-139 **State Univ of New York - Stony Brook** **2944**
Quantitative spectroscopic measurements on the principal constituents in planetary atmospheres

Period	Obligations	
04/12/71-05/31/80	FY77: $30,000	TOTAL: $264,090
Prin Invest	*NASA Tech Officer*	*CASE Category*
Varanasi, P.	HQ-SL/Brunk, W. E. HQ-SL/Mitz, M. A.	31-Atmos Sci

NGR 33-015-141 **State Univ of New York - Stony Brook** **2945**
Spectroscopic observations of the planets

Period	Obligations	
01/26/71-08/31/78	FY77:	TOTAL: $173,535
Prin Invest	*NASA Tech Officer*	*CASE Category*
Owen, T.	HQ-SL/Brunk, W. E. HQ-SL/Quaide, W. L.	11-Astronomy

NGR 33-015-160 **State Univ of New York - Stony Brook** **2946**
Thermodynamics and kinetics of reactions in protective coating systems

Period	Obligations	
04/12/72-10/01/76	FY77:	TOTAL: $128,482
Prin Invest	*NASA Tech Officer*	*CASE Category*
Seigle, L. L.	LERC/Levine, S. R.	47-Materials Engr

NGR 33-015-165 **State Univ of New York - Stony Brook** **2947**
Planetary atmospheres research

Period	Obligations	
11/01/72-12/31/77	FY77: $101,453	TOTAL: $259,565
Prin Invest	*NASA Tech Officer*	*CASE Category*
Owen, T.	GSFC/Hansen, J. E.	31-Atmos Sci

NGR 33-015-169 **State Univ of New York - Stony Brook** **2948**
Organic molecules in the atmospheric of Jupiter: Investigation of colors in Jovian cloud deck

Period	Obligations	
10/16/72-11/30/76	FY77:	TOTAL: $80,637
Prin Invest	*NASA Tech Officer*	*CASE Category*
Owen, T.	HQ-SB/Young, R. S.	12-Chemistry

NGR 33-015-180 **State Univ of New York - Stony Brook** **2949**
Cosmic rays in interplanetary space

Period	Obligations	
01/07/74-09/30/77	FY77:	TOTAL: $74,454
Prin Invest	*NASA Tech Officer*	*CASE Category*
Forman, M. A.	HQ-SA/Opp, A. G.	11-Astronomy

NSG 2173 **State Univ of New York - Stony Brook** **2950**
Far infrared observations of dark clouds using the C-141 airborne IR observatory

Period	Obligations	
09/01/76-09/30/77	FY77:	TOTAL: $11,680
Prin Invest	*NASA Tech Officer*	*CASE Category*
Simon, M.	ARC/Gillespie, C. M., Jr. ARC/Cameron, R. M.	11-Astronomy

NSG 3051 **State Univ of New York - Stony Brook** **2951**
Combustion of porous solids at reduced gravitational conditions

Period	Obligations	
06/01/75-06/30/78	FY77: $30,000	TOTAL: $74,703
Prin Invest	*NASA Tech Officer*	*CASE Category*
Berlad, A. L.	LERC/Haggard, J. B.	43-Chem Engr

NSG 5015 **State Univ of New York - Stony Brook** **2952**
Theoretical studies of the atmospheres of the giant planets

Period	Obligations	
07/01/74-08/31/76	FY77: $936	TOTAL: $57,962
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hogan, J. S.	GSFC/Hansen, J. E.	31-Atmos Sci

NSG 5102 **State Univ of New York - Stony Brook** **2953**
Atmospheric pollution development and applications of regional scale dispersion models

Period	Obligations	
03/01/76-02/28/78	FY77: $74,458	TOTAL: $134,458
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hogan, J. S.	GSFC/Stewart, R. W.	31-Atmos Sci

NSG 5125 **State Univ of New York - Stony Brook** **2954**
Research on thin-film Josephson-junction detector for millimeter and submillimeter wavelength applications

Period	Obligations	
11/01/76-11/30/77	FY77: $32,101	TOTAL: $32,101
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Kao, Y. H.	GSFC/Kerr, A. R.	11-Astronomy

NSG 7003 **State Univ of New York - Stony Brook** **2955**
Research in grating technology and related areas

Period	Obligations	
11/01/73-12/31/77	FY77: $5,999	TOTAL: $83,999
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Stroke, G. W.	HQ-ST/Bohlin, J. D	11-Astronomy

NSG 7036 **State Univ of New York - Stony Brook** **2956**
Lunar rock surface phenomena

Period	Obligations	
02/01/74-11/30/75	FY77: $25,313	TOTAL: $43,953
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Hartung, J. B.	HQ-SL/Stuartalexander, D. E.	32-Geological Sci

NSG 7150 **State Univ of New York - Stony Brook** **2957**
A synthesis of lunar mineral data

Period	Obligations	
07/11/75-09/30/76	FY77:	TOTAL: $43,096
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Papike, J. J.	HQ-SL/Williams, R. J.	32-Geological Sci

NSG 7225 **State Univ of New York - Stony Brook** **2958**
Argon dating of terrestrial shocked rocks

Period	Obligations	
05/01/76-04/30/77	FY77:	TOTAL: $25,916
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Schaeffer, O. A.	HQ-SL/Williams, R. J.	32-Geological Sci
	HQ-SL/Flinn, E. A.	

NSG 7270 **State Univ of New York - Stony Brook** **2959**
Cells, embryos and development in space

Period	Obligations	
09/01/76-10/31/77	FY77: $70,000	TOTAL: $70,000
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Krikorian, A. D.	HQ-SB/Halstead, T. W.	51-Biology
	HQ-SB/Geib, D. S.	

NSG 7286 **State Univ of New York - Stony Brook** **2960**
Infrared spectroscopy of Jupiter and Saturn

Period	Obligations	
09/01/76-11/30/77	FY77: $35,295	TOTAL: $35,295
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Knacke, R. F	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. F.	

NSG 7320 **State Univ of New York - Stony Brook** **2961**
Theoretical planetary physics

Period	Obligations	
04/01/77-03/31/78	FY77: $25,580	TOTAL: $25,580
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Caldwell, J. J	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. F.	

NSG 9013 **State Univ of New York - Stony Brook** **2962**
Dating of lunar cratering events and rates of lunar surface processes

Period	Obligations	
07/15/74-01/31/78	FY77: $85,000	TOTAL: $253,749
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Pao, M. T.	JSC/Harris, J. W.	32-Geological Sci

NSG 9044 **State Univ of New York - Stony Brook** **2963**
Petrologic and stratigraphic studies of lunar drill cores and drive tubes

Period	Obligations	
09/01/76-01/31/80	FY77: $160,800	TOTAL: $189,300
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Papike, J. J.	JSC/Harris, J. W.	13-Physics

NGR 33-219-002 **State Univ of New York Col - Geneseo** **2964**
Comparision of Lyman 2, HE I and 10830 lines structures and variations in early type star atmosphere

Period	Obligations	
05/14/73-06/30/77	FY77:	TOTAL: $6,800
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Meisel, D. D.	HQ-SA/Roman, N. G.	11-Astronomy

NSG 5077 **State Univ of New York College - Purchase** **2965**
Spectral and Monte Carlo predictability studies

Period	Obligations	
09/01/75-11/30/77	FY77:	TOTAL: $27,688
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Tenenbaum, J	GSFC/Halem, M	31-Atmos Sci

NGR 33-022-157 **Syracuse University** **2966**
Application of strain range partitioning to crack propagation

Period	Obligations	
09/01/73-06/30/77	FY77:	TOTAL: $82,211
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Liu, H. W.	LERC/Hirschberg, M. H.	47-Materials Engr

NGR 33-032-004 **Union College** **2967**
Optically pumped submillimeter waveguide maser amplifiers and oscillators

Period	Obligations	
04/15/74-04/14/78	FY77: $10,006	TOTAL: $85,978
Prin Invest	*NASA Tech Officer*	*CASE Categor*
Galantowicz, A.	GSFC/McAvoy, N.	13-Physics
	GSFC/McElroy, J. H.	

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NAS 5-20028 **University of Rochester** **2968**
Optical components associated with investigation of solar phenomena in ultraviolet region

Period	Obligations	
01/15/74-09/30/78	FY77 $24,000	TOTAL $49,350
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baumeister, P. W.	GSFC/Osantowski, J. F.	13-Physics

NGR 33-019-002 **University of Rochester** **2969**
Research on automatic remote direction bacteria including modification of detection device for chemical analysis of lunar & planetary surface materials

Period	Obligations	
12/19/61-03/31/77	FY77 $8,000	TOTAL $1,128,675
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hempfling, W. P.	HQ-SB/Young, R. S.	51-Biology

NSG 2198 **University of Rochester** **2970**
Energy transfer between molecular collision systems and laser radiation fields

Period	Obligations	
12/31/76-12/30/77	FY77 $65,408	TOTAL: $65,408
Prin Invest	*NASA Tech Officer*	*CASE Category*
George, T. F.	ARC/Stallcop, J. R.	13-Physics
Zimmerman, I. H.	ARC/Billman, K. W	
Lam, K. S		

NSG 5054 **University of Rochester** **2971**
Investigation of the radius and composition of Sirius B from far UV observations

Period	Obligations	
01/01/75-12/31/77	FY77	TOTAL $14,124
Prin Invest	*NASA Tech Officer*	*CASE Category*
Savedoff, M. P.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7366 **University of Rochester** **2972**
Microbial adaptation in extreme environments: Antarctic yeasts

Period	Obligations	
07/25/77-08/24/77	FY77: $2,660	TOTAL $2,660
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vishniac, H. S.	HQ-SB/Young, R. S	51-Biology

NSG 7359 **Vassar College** **2973**
OAO data analysis

Period	Obligations	
06/01/77-05/31/78	FY77 $9,371	TOTAL $9,371
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hutchinson, J. L	HQ-SA/Rosendhal, J. D	11-Astronomy
	HQ-SA/Roman, N. G	

NGL 33-023-018 **Yeshiva University** **2974**
Research in space physics

Period	Obligations	
06/29/66-03/31/77	FY77 $7,657	TOTAL $660,457
Prin Invest	*NASA Tech Officer*	*CASE Category*
Finkelstein, D	GSFC/Hansen, J. F.	11-Astronomy

NSG 3123 **Yeshiva University** **2975**
Investigation of the topographical features of surface carrier concentrations and lifetime determinations in silicon solar cells

Period	Obligations	
10/01/76-09/30/77	FY77 $24,523	TOTAL $24,523
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pollak, F.	LERC/Godlewski, M. P.	45-Elec Engr

NORTH CAROLINA

NGT 34-017-001 **Bennett College** **2976**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/74-05/31/78	FY77 $7,000	TOTAL $28,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sayles, J. N.	HQ-P/Pohly, J. G.	99-Multi-Discip
	HQ-U/Jenkins, H. G.	

NAS 5-22475 **Duke University** **2977**
Direct energy transfer power subsystem modeling and analysis

Period	Obligations	
06/20/75-06/20/77	FY77	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilson, T. G.	GSFC/Rodriguez, G. E.	45-Elec Engr
Owen, H. A., Jr		

NGT 34-001-001 **Duke University** **2978**
Research on satellite electrical power conversion systems and circuit protection

Period	Obligations	
02/19/65-02/28/79	FY77: $10,000	TOTAL: $966,031
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilson, T. G	GSFC/Rodriguez, G. E.	45-Elec Engr
	GSFC/Pasciutti, E. R.	

NSG 3157 **Duke University** **2979**
Design feasibility of high-power lightweight dc-to-dc converters for space power applications

Period	Obligations	
07/01/77-06/30/78	FY77 $13,000	TOTAL $13,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wilson, T. G.	LERC/Triner, J. E.	45-Elec Engr
Owen, H. A., Jr		

NSG 3160 **Duke University** **2980**
Acceleration of convergence

Period	Obligations	
06/01/77-06/01/78	FY77 $10,342	TOTAL $10,342
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, D. A	LERC/Ford, W. F.	21-Mathematics
	LERC/Fessler, T. E.	

NSG 1179 **Elizabeth City State University** **2981**
Research program on the charge transfer excited states of transition metal complexes

Period	Obligations	
06/01/75-07/12/77	FY77:	TOTAL: $45,055
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chatterjee, K K	LARC/Conway, E. J	12-Chemistry

NAS 5-24101 **North Carolina A&T State University** **2982**
Feasibility study for conducting experimental research in curriculum sharing

Period	Obligations	
04/14, 77-04/13/78	FY77, $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Williams, L	GSFC/Whalen, A.	45-Elec Engr

NGT 34-012-750 **North Carolina A&T State University** **2983**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/75-05/30/77	FY77	TOTAL $28,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chandra, S	HQ-P/Pohly, J. G. HQ-U/Jenkins, H. G.	49-Engr, NEC

NSG 1296 **North Carolina A&T State University** **2984**
Effect of temperature on composite sandwich structures subjected to low velocity impact

Period	Obligations	
05/17/76-08/16/79	FY77 $55,783	TOTAL $76,617
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sharma, A V	LARC/Rhodes, M D LARC/Mikulas, M. M., Jr	47-Materials Engr

NSG 1346 **North Carolina A&T State University** **2985**
Investigation of laser-induced parametric interactions in optical waveguides and fibers

Period	Obligations	
10/15/76-10/14/77	FY77: $29,815	TOTAL $29,815
Prin Invest	*NASA Tech Officer*	*CASE Category*
Yu, C	LARC/Allario, F	13-Physics

NSG 1390 **North Carolina A&T State University** **2986**
Material growth and characterization directed toward improving III-V heterojunction solar cells

Period	Obligations	
02/01/77-01/31/78	FY77 $150,000	TOTAL $150,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Alexander, W I	LARC/Hutchby, J A LARC/Hendricks, H D.	45-Elec Engr

NSG 8045 **North Carolina A&T State University** **2987**
Research study of composites as substrate materials in large space telescopes

Period	Obligations	
10/15/76-01/02/78	FY77 $23,155	TOTAL $23,155
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sharma, A. V	MSFC/Jones, C O MSFC/Kent, M I	46-Mech Engr

NSG 5120 **North Carolina Central University** **2988**
Optically pumped submillimeter waves and applications

Period	Obligations	
06/07/76-05/31/78	FY77, $35,452	TOTAL: $74,011
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dutta, J. M Jones, C. R	GSFC/McAvoy, N.	13-Physics

NAS 6-2617 **North Carolina State Univ. - Raleigh** **2989**
Wind wave current interaction studies

Period	Obligations	
02/07/75-02/28/78	FY77, $25,040	TOTAL: $138,194
Prin Invest	*NASA Tech Officer*	*CASE Category*
Long, S. R.	WFC/Stanley, H. R. WFC/Huang, N. E.	33-Oceanography

NAS 8-31984 **North Carolina State Univ - Raleigh** **2990**
Study of satellite sensing

Period	Obligations	
04/29/76-09/30/77	FY77	TOTAL $19,998
Prin Invest	*NASA Tech Officer*	*CASE Category*
Welby, G	MSFC/Paludan, C. T	39-Env Sci, NEC

NGL 34-002-095 **North Carolina State Univ - Raleigh** **2991**
Acoustic energy effects on sleep and human performance. The effects of certain fundamental parameters of acoustic stimuli

Period	Obligations	
04/11/69-11/30/77	FY77 $40,125	TOTAL $395,582
Prin Invest	*NASA Tech Officer*	*CASE Category*
Horvath, J J.	LARC/Mayes, W H.	69-Psych, NEC

NGR 34-002-188 **North Carolina State Univ - Raleigh** **2992**
Deployable reflector antenna study

Period	Obligations	
10/18/72-12/31/77	FY77 $10,059	TOTAL $68,085
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kauffman, J F	LARC/Croswell, W F LARC/Bailey, M. C	45-Elec Engr

NGR 34-002-195 **North Carolina State Univ - Raleigh** **2993**
Theoretical analysis of current voltage characteristics of solar cells

Period	Obligations	
06/01/73-07/31/78	FY77: $25,000	TOTAL $137,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hauser, J R	LERC/Godlewski, M P. LERC/Brandhorst, H W., Jr	45-Elec Engr

NSG 1058 **North Carolina State Univ - Raleigh** **2994**
Analyses of nuclear induced plasmas by means of kinetic theory

Period	Obligations	
07/01/74-06/30/78	FY77 $30,000	TOTAL $120,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hassan, H A	LARC/Hohl, F LARC/Meador, W F	13-Physics

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NSG 1077 **North Carolina State Univ. - Raleigh** **2995**
Estimate the performance and dynamic response characteristics of an advanced technology light twin aircraft and compare with flight test results

Period	Obligations	
08/15/74-12/31/77	FY77: $58,933	TOTAL: $135,736
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smetana, F. O. Fox, S. R.	LARC/Crane, H. L.	41-Aero Engr

NSG 1116 **North Carolina State Univ. - Raleigh** **2996**
Theoretical study of heterojunction and graded band gap type solar cells

Period	Obligations	
10/14/74-01/31/78	FY77: $19,900	TOTAL: $60,900
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hauser, J. R.	LARC/Hutchby, J. A. LARC/Hendricks, H. D.	45-Elec Engr

NSG 1202 **North Carolina State Univ. - Raleigh** **2997**
Study of the titanium dioxide-gallium arsenide interface

Period	Obligations	
06/01/75-08/31/77	FY77:	TOTAL: $31,134
Prin Invest	*NASA Tech Officer*	*CASE Category*
Littlejohn, M. A.	LARC/Miller, W. E. LARC/Hendricks, H. D.	13-Physics

NSG 1205 **North Carolina State Univ. - Raleigh** **2998**
Research program in aeroacoustics for noise control of general aviation aircraft

Period	Obligations	
07/01/75-06/30/78	FY77: $29,000	TOTAL: $87,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hart, F. D. Bailey, J. R.	LARC/Mayes, W. H. LARC/Cawthorn, J. M.	13-Physics

NSG 1287 **North Carolina State Univ. - Raleigh** **2999**
ADP techniques for calculating heat transfer rates on shuttle-type configurations using prescribed surface pressures

Period	Obligations	
03/01/76-07/31/77	FY77	TOTAL: $18,381
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dejarnette, F. R.	LARC/Walberg, G. D. LARC/Jones, J. J.	41-Aero Engr

NSG 1353 **North Carolina State Univ. - Raleigh** **3000**
Charge transfer devices for remote sensing applications

Period	Obligations	
11/22/76-12/31/77	FY77: $29,777	TOTAL: $29,777
Prin Invest	*NASA Tech Officer*	*CASE Category*
Snyder, W. E.	LARC/Benz, H. F. LARC/Husson, C.	45-Elec Engr

NSG 1355 **North Carolina State Univ. - Raleigh** **3001**
A study of real-time computer graphic display technology for aeronautical applications

Period	Obligations	
01/01/77-12/31/77	FY77: $20,259	TOTAL: $20,259
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stroh, R. W.	LARC/Hatfield, J. J. LARC/Batson, V. M.	45-Elec Engr

NSG 1377 **North Carolina State Univ. - Raleigh** **3002**
Investigation of flow noise from streamlined and blunt bodies trailing edge effects

Period	Obligations	
01/01/77-12/31/77	FY77: $42,000	TOTAL: $42,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hodgson, T. H.	LARC/Brooks, T. F. LARC/Preisser, J. S.	41-Aero Engr

NSG 1423 **North Carolina State Univ. - Raleigh** **3003**
Preliminary broadline NMR study of epoxy resins

Period	Obligations	
06/01/77-08/31/77	FY77: $1,483	TOTAL: $1,483
Prin Invest	*NASA Tech Officer*	*CASE Category*
Memory, J. D. Fornes, R. E.	LARC/Long, E. R., Jr.	47-Materials Engr

NSG 1437 **North Carolina State Univ. - Raleigh** **3004**
Investigation of aerodynamic characteristic of subsonic wings

Period	Obligations	
07/25/77-05/15/79	FY77: $18,965	TOTAL: $18,965
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dejarnette, F. R.	LARC/Campbell, J. F.	41-Aero Engr

NAS 8-26601 **University of North Carolina - Chapel Hill** **3005**
Passive particle dosimetry

Period	Obligations	
11/17/70-06/30/77	FY77	TOTAL: $39,792
Prin Invest	*NASA Tech Officer*	*CASE Category*
Childs, C. B.	MSFC/Parnell, T. A. MSFC/Eby, P. B.	13-Physics

NAS 9-14697 **University of North Carolina - Chapel Hill** **3006**
Role of natriuretic peptides in the regulation of urinary sodium excretion

Period	Obligations	
06/23/75-06/23/78	FY77: $50,000	TOTAL: $100,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gitelman, H. J.	JSC/Leach, C.	59-Life Sci, NEC

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NSG 7022 **Bowling Green State University** **3007**
A radially streaming particle model for Seyfert galaxy nuclei and quasistellar objects

Period	Obligations	
07/01/74-12/31/77	FY77 $13,000	TOTAL $65,083
Prin. Invest.	NASA Tech. Officer	CASE Category
Ptak, R. L	HQ-SA Roman, N. G	11-Astronomy
Stoner, R. E	HQ-SA Rosendhal, J. D	

NAS 3-21046 **Case Western Reserve University** **3008**
Spacelab experiment on surface tension driven convection

Period	Obligations	
09/16/77-12/29/78	FY77 $52,735	TOTAL $52,735
Prin. Invest.	NASA Tech. Officer	CASE Category
Ostrach, S	LERC LaBus, T. L	46-Mech. Engr

NAS 5-24144 **Case Western Reserve University** **3009**
Axially grooved heat pipe study

Period	Obligations	
04/25/77-09/25/78	FY77 $13,257	TOTAL $13,257
Prin. Invest.	NASA Tech. Officer	CASE Category
Kamotani, Y	GSFC Ollendorf, S	46-Mech. Engr
	GSFC McIntosh, R	

NAS 8-31802 **Case Western Reserve University** **3010**
Convective analysis on various crystal growth systems

Period	Obligations	
03/15/76-06/14/77	FY77	TOTAL $30,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Ostrach, S	MSFC Schafer, C. F	46-Mech. Engr

NAS 8-31907 **Case Western Reserve University** **3011**
Convection in crystal growing

Period	Obligations	
03/15/76-01/31/78	FY77 $20,000	TOTAL $39,995
Prin. Invest.	NASA Tech. Officer	CASE Category
Ostrach, S	MSFC Schafer, C. F	12-Chemistry
	MSFC Eichil*G. H	

NGL 36-003-064 **Case Western Reserve University** **3012**
Basic scientific research in fluid physics

Period	Obligation	
06/14/68-08/31/77	FY77	TOTAL $1,112,673
Prin. Invest.	NASA Tech. Officer	CASE Category
Reshotko, E	LERC Nichols, L. D.	19-Phys. Sci. NEC

NGL 36-003-094 **Case Western Reserve University** **3013**
The effects of deformation on dispersion

Period	Obligations	
10/18/66-08/31/78	FY77 $20,988	TOTAL $278,888
Prin. Invest.	NASA Tech. Officer	CASE Category
Ebert, L. J	LERC Glasgow, T. K	47-Materials Engr

NGR 36-027-050 **Case Western Reserve University** **3014**
Catalysts for electrochemical generation of oxygen

Period	Obligations	
02/22/72-05/14/78	FY77 $56,000	TOTAL $294,747
Prin. Invest.	NASA Tech. Officer	CASE Category
Yeager, E	ARC Quattrone, P. D	12-Chemistry

NGR 36-027-051 **Case Western Reserve University** **3015**
Stress corrosion cracking & hydrogen embrittlement

Period	Obligations	
06/02/72-08/15/77	FY77	TOTAL $51,500
Prin. Invest.	NASA Tech. Officer	CASE Category
Hehemann, R. H	LERC Gray, H. R	47-Materials Engr
Truhan, J. J		

NGR 36-027-053 **Case Western Reserve University** **3016**
Microelectronic biomstrumentation systems

Period	Obligations	
04/27/72-12/31/77	FY77 $40,000	TOTAL $273,300
Prin. Invest.	NASA Tech. Officer	CASE Category
Ko, W. H	ARC McCutcheon, E. P	
	ARC Sandler, H	59-Life Sci. NEC

NGR 36-027-064 **Case Western Reserve University** **3017**
Study of effects of laver control on shock wave turbulent boundary laver interactions in supersonics inlets

Period	Obligations	
08/01/73-09/30/77	FY77	TOTAL $121,724
Prin. Invest.	NASA Tech. Officer	CASE Category
Reshotko, E	LERC Bishop, A. R	41-Aero. Engr

NGT 36-027-011 **Case Western Reserve University** **3018**
Summer program of NASA-ASEE summer faculty fellowships

Period	Obligations	
12/16/69-03/31/78	FY77 $156,888	TOTAL $971,633
Prin. Invest.	NASA Tech. Officer	CASE Category
Prahl, J. M	HQ-P Carter, C. H	49-Engr. NEC

NSG 3009 **Case Western Reserve University** **3019**
An X-ray photoelectric spectroscopy study of nickel and nickel-base alloy surface alteration in simulated hot corrosion conditions

Period	Obligations	
06/01/74-12/31/77	FY77 $3,900	TOTAL $88,900
Prin. Invest.	NASA Tech. Officer	CASE Category
Mateesen, G. D	LERC Lohl, F. J	12-Chemistry
	LERC Stearns, C. A	

NSG 3027 **Case Western Reserve University** **3020**
Processing studies on iron oxide ceramics

Period	Obligations	
09/01/74-08/31/77	FY77	TOTAL $46,700
Prin. Invest.	NASA Tech. Officer	CASE Category
Mitchell, T. E	LERC Probst, H. B.	47-Materials Engr
Eyer, H. H	LERC Ashbrook, R. L	

NSG 3040 **Case Western Reserve University** **3021**
Heat transfer characteristics of porous materials

Period	Obligations	
10/01/74-10/31/77	FY77: $30,000	TOTAL: $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dybbs, A.	LERC/Fortini, A	47-Materials Engr

NSG 3053 **Case Western Reserve University** **3022**
Convection phenomena at reduced gravity

Period	Obligations	
06/01/75-12/31/77	FY77:	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ostrach, S.	LERC/LaBus, T. L.	49-Engr, NEC

NSG 3058 **Case Western Reserve University** **3023**
Nacelle boattail flows

Period	Obligations	
03/01/75-05/30/77	FY77:	TOTAL: $60,406
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reshotko, E.	LERC/Bober, L. J.	41-Aero Engr

NSG 3062 **Case Western Reserve University** **3024**
Interactive compressor flow-field calculations

Period	Obligations	
02/01/75-01/31/78	FY77	TOTAL: $55,986
Prin Invest	*NASA Tech Officer*	*CASE Category*
Reshotko, E.	LERC/Sockol, P. M.	41-Aero Engr

NSG 3074 **Case Western Reserve University** **3025**
Applications of high power lasers

Period	Obligations	
05/29/75-08/14/78	FY77: $50,242	TOTAL: $149,655
Prin Invest	*NASA Tech Officer*	*CASE Category*
Angus, J. C.	LERC/Dunning, J. W., Jr.	
Edwards, R. V.		43-Chem Engr
Mann, J. A., Jr.		

NSG 3077 **Case Western Reserve University** **3026**
Roller bearing geometry design

Period	Obligations	
08/01/75-07/31/76	FY77	TOTAL: $24,532
Prin Invest	*NASA Tech Officer*	*CASE Category*
Savage, M.	LERC/Brewe, D. E.	46-Mech Engr
	LERC/Scibbe, H. W.	

NSG 3078 **Case Western Reserve University** **3027**
Sampling designs for the surveillance of air pollution resources and intensity

Period	Obligations	
08/01/75-01/30/78	FY77	TOTAL: $19,545
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zacks, S.	LERC/Neustadter, H. E.	21-Mathematics
Kedem, B.		
Anbar, D.		

NSG 3085 **Case Western Reserve University** **3028**
Demonstration experiment on utilization of buffer memory system for transmission of color video using moderate bandwidth communications satellite channels

Period	Obligations	
10/23/75-06/20/78	FY77: $120,958	TOTAL: $312,479
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pao, J. H.	LERC/Nice, A. W.	45-Elec Engr

NSG 3115 **Case Western Reserve University** **3029**
Computer graphic techniques for visualizing and interpreting fluid flow models

Period	Obligations	
06/30/76-06/29/79	FY77:	TOTAL: $48,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lynch, W. C.	LERC/Anderson, B. H.	41-Aero Engr
Parke, F. R.		

NSG 3126 **Case Western Reserve University** **3030**
Effect of surface texture by ion beam sputtering on implant biocompatibility and soft tissue attachment

Period	Obligations	
10/01/76-12/01/77	FY77:	TOTAL: $19,890
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gibbons, D. F.	LERC/Banks, B. A.	49-Engr, NEC
	LERC/Wiegand, A. J.	

NSG 3131 **Case Western Reserve University** **3031**
Adaptation of ion beam technology to microfabrication of solid state devices and transducers

Period	Obligations	
11/01/76-11/01/77	FY77: $40,000	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Topich, J. A.	LERC/Robson, R. R.	19-Phys Sci, NEC
Ko, W. H.	LERC/Theman, E. R.	

NSG 3140 **Case Western Reserve University** **3032**
Spectroscopic investigation of the effects of moisture on epoxy resins

Period	Obligations	
02/01/77-01/31/80	FY77: $58,680	TOTAL: $58,680
Prin Invest	*NASA Tech Officer*	*CASE Category*
Koenig, J. L.	LERC/Serafini, T. T.	12-Chemistry
	LERC/Lauver, R. W.	

NSG 3142 **Case Western Reserve University** **3033**
Characterization of structure of a polymer with a magnetic resonance spectroscopy

Period	Obligations	
03/01/77-02/28/78	FY77: $34,500	TOTAL: $34,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ritchey, W. M.	LERC/Lauver, R. W.	12-Chemistry

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NSG 3151 **Case Western Reserve University** **3034**
The evaluation of surface texturing, by ion beam sputtering, on the mechanical fixation and biological compatibility of orthopedic alloys in bone

Period 05/01/77-04/30/78 *Obligations* FY77: $13,522 TOTAL: $13,522
Prin Invest Gibbons, D F; Heiple, K. G; Makley, J T
NASA Tech Officer LERC/Weigand, A G
CASE Category 53-Other Medical

NSG 5136 **Case Western Reserve University** **3035**
Comparative qualitative study of high-resolution ultraviolet spectral scans of early-type stars

Period 11/15/76-11/14/77 *Obligations* FY77 $6,646 TOTAL $6,646
Prin Invest Bidelman, W P
NASA Tech Officer GSFC/Kupperian, J E, Jr
CASE Category 11-Astronomy

NSG 7035 **Case Western Reserve University** **3036**
Development of a generalized technology for life prediction in the high-temperature creep and fatigue range

Period 05/01/74-04/30/78 *Obligations* FY77 $35,153 TOTAL $142,387
Prin Invest Manson, S S
NASA Tech Officer LERC Hirschberg, M H; LERC Halford, G R
CASE Category 47-Materials Engr

NGR 36-033-003 **Central State University - Ohio** **3037**
Effects of some selected atmospheric pollutants on animal population surrounding the Cleveland area

Period 04/25/73-09/30/78 *Obligations* FY77 $37,703 TOTAL $136,807
Prin Invest Craft, T J, Sr; Johnson, M A, Jr
NASA Tech Officer LERC Fordyce, J S; LERC/King, R B
CASE Category 51-Biology

NAS 3-18547 **Cleveland State University** **3038**
Synthesis and optimization of spur gear tooth profile shapes for high load capacity

Period 06/04/74-04/23/78 *Obligations* FY77 TOTAL $59,980
Prin Invest Kasuba, R
NASA Tech Officer LERC/Townsend, D P
CASE Category 46-Mech Engr

NSG 1445 **Cleveland State University** **3039**
Boundedness of solutions and controllability of systems and pursuit games described by nonlinear neutral functional differential equations

Period 08/16/77-08/15/78 *Obligations* FY77 $17,768 TOTAL $17,768
Prin Invest Chukwu, E N
NASA Tech Officer LARC/Dunning, R S; LARC Elliott, J R
CASE Category 41-Aero Engr

NSG 3144 **Cleveland State University** **3040**
International Conference on High Pressure and Low Temperature Physics

Period 03/01/77-08/01/77 *Obligations* FY77: $5,000 TOTAL: $5,000
Prin Invest Chu, C W
NASA Tech Officer LERC/Brown, G. V; LERC/Woollam, J. A.
CASE Category 13-Physics

NSG 3155 **Cleveland State University** **3041**
Dense silicon-nitride bodies without additives

Period 06/30/77-06/30/79 *Obligations* FY77: $44,850 TOTAL $44,850
Prin Invest Yeh, H C.
NASA Tech Officer LERC/Ashbrook, R. L
CASE Category 47-Materials Engr

NSG 2013 **Kent State University** **3042**
Transport of trace contaminants through porous media

Period 03/15/74-12/15/77 *Obligations* FY77 $9,500 TOTAL $73,700
Prin Invest Madey, R
NASA Tech Officer ARC/Quattrone, P. D
CASE Category 12-Chemistry

NSG 3159 **Kent State University** **3043**
Evaluation of surface alignment mechanisms for nematic liquid crystals

Period 08/01/77-07/31/78 *Obligations* FY77 $10,157 TOTAL $10,157
Prin Invest Johnson, D L
NASA Tech Officer LERC/Wintucky, E G; LERC/Banks, B A
CASE Category 47-Materials Engr

NAS 9-14538 **Miami University** **3044**
Research on a possible mechanism of o-g sickness

Period 02/15/75-03/31/78 *Obligations* FY77 $24,634 TOTAL $78,687
Prin Invest Parker, D L
NASA Tech Officer JSC Homick, J L; JSC/Reschke, M L
CASE Category 59-Life Sci, NEC

NSG 1383 **Miami University** **3045**
High pressure laser plasma studies

Period 03/01/77-02/28/78 *Obligations* FY77 $21,204 TOTAL $21,204
Prin Invest Wells, W L
NASA Tech Officer LARC Hohl, F
CASE Category 13-Physics

NSG 1396 **Miami University** **3046**
Nuclear pumped lasers

Period 03/01/77-08/31/78 *Obligations* FY77 $31,089 TOTAL $31,089
Prin Invest Wells W L
NASA Tech Officer LARC Hohl, F
CASE Category 13-Physics

NAS 1-14406 **Ohio State University** **3047**
General aviation low-speed airfoil design and development service

Period	Obligations	
06/30/76-06/29/79	FY77: $100,000	TOTAL $200,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gregorek, G. M	LARC/Barnwell, R. W.	41-Aero Engr
Burggraf, O. R.	LARC/Pierpont, P. K.	

NAS 2-8954 **Ohio State University** **3048**
A tactual display aid for primary flight training

Period	Obligations	
07/01/75-03/31/78	FY77: $64,674	TOTAL: $151,939
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gilson, R. D.	ARC/Lauber, J. K.	69-Psych, NEC
Fenton, R. E.	ARC/Billings, C. E.	

NAS 2-9714 **Ohio State University** **3049**
Wind tunnel research on low drag airfoils for short haul aircraft

Period	Obligations	
08/01/77-02/28/78	FY77: $68,975	TOTAL: $68,975
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gregorek, G. M.	ARC/Galloway, T. L.	41-Aero Engr
Lee, J. D.	ARC/Williams, L. J.	

NAS 5-22575 **Ohio State University** **3050**
Communications link characterization experiment

Period	Obligations	
09/02/75-12/01/77	FY77 $97,000	TOTAL. $197,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hodge, D. B.	GSFC/Hirschmann E.	45-Elec Engr

NAS 5-23380 **Ohio State University** **3051**
Ice and climate study/Antarctica

Period	Obligations	
03/31/76-07/01/77	FY77: $10,300	TOTAL. $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rayner, J. N.	GSFC/Zwally, H J.	39-Env Sci, NEC

NAS 5-23850 **Ohio State University** **3052**
High resolution multi-frequency radar/radiometer data analysis

Period	Obligations	
01/25/77-01/24/78	FY77 $20,000	TOTAL $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hodge, D B	GSFC/Hirschmann, E.	45-Elec Engr

NAS 6-2484 **Ohio State University** **3053**
Investigation to improve existing gravity models, using GEOS altimeter data

Period	Obligations	
04/15/74-10/31/77	FY77 $34,992	TOTAL $104,592
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rapp, R H.	WFC/Stanley, H. R	32-Geological Sci
	WFC/Rossi, L C.	

NAS 8-31195 **Ohio State University** **3054**
Close grid geodynamic satellite measurement system definition

Period	Obligations	
01/01/75-11/22/75	FY77:	TOTAL: $68,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mueller, I. I.	MSFC/Costes, N C.	19-Phys Sci, NEC
	MSFC/Page, M. A.	

NCA 2-565701 **Ohio State University** **3055**
Application of coarse mesh rebalancing methods to aerodynamic equations

Period	Obligations	
08/10/76-11/30/77	FY77:	TOTAL: $15,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nakamura, S.	ARC/Steger, J. L.	21-Mathematics

NGL 36-008-051 **Ohio State University** **3056**
Stress corrosion cracking of titanium alloys

Period	Obligations	
06/23/66-06/01/79	FY77:	TOTAL: $208,696
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beck, F. H.	LERC/Gray, H. R	47-Materials Engr

NGL 36-008-138 **Ohio State University** **3057**
Avionics antenna research space communication

Period	Obligations	
12/23/69-12/31/77	FY77.	TOTAL: $295,758
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burnside, W. D.	LARC/Gilreath, M C.	45-Elec Engr
Richmond, J H		

NGR 36-008-161 **Ohio State University** **3058**
The direct combination of satellite and gravity data

Period	Obligations	
05/01/71-11/30/77	FY77: $23,837	TOTAL: $201,836
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rapp, R. H.	GSFC/Marsh, J G	32-Geological Sci

NGR 36-008-204 **Ohio State University** **3059**
Activity related to earth and ocean physics application program

Period	Obligations	
10/01/73-09/30/77	FY77. $91,606	TOTAL. $244,112
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mueller, I. I.	HQ-ES/Murphy, J. P	32-Geological Sci
Uotila, U. A.		

NGT 36-008-007 **Ohio State University** **3060**
Training of post graduate medical students in field of aerospace medicine

Period	Obligations	
04/02/64-08/31/78	FY77: $82,977	TOTAL. $687,463
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keller, M. D	HQ-P/Carter, C H	52-Clinical Med

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NSG 1184 **Ohio State University** **3061**
Investigation of the aerodymanic characteristics of a new general aviation airfoil in flight

Period	Obligations	
05/01/75-08/31/77	FY77: $25,000	TOTAL: $144,106

Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M	LARC/Hall, A. W.	41-Aero Engr
Weislogel, G. S.		

NSG 1327 **Ohio State University** **3062**
A flight evaluation of the drag characteristics of the Bellanca Skyrocket II

Period	Obligations	
08/01/76-10/31/77	FY77:	TOTAL: $25,000

Prin Invest	NASA Tech Officer	CASE Category
Gregorek, G. M	LARC/Judd, J. H	41-Aero Engr
Weislogel, G. S.	LARC/Hall, A. W	

NSG 2162 **Ohio State University** **3063**
Electronic search technology applicable to the search for extraterrestrial intelligence problem

Period	Obligations	
06/01/76-12/31/77	FY77:	TOTAL: $15,000

Prin Invest	NASA Tech Officer	CASE Category
Dixon, R. S	ARC/Billingham, J.	45-Elec Engr
Kraus, J. D		

NSG 2175 **Ohio State University** **3064**
Laboratory infrared research relevant to atmospheric and planetary studies

Period	Obligations	
10/01/76-03/31/78	FY77:	TOTAL: $53,000

Prin Invest	NASA Tech Officer	CASE Category
Rao, K. N.	ARC/Boese, R. W	13-Physics

NSG 2179 **Ohio State University** **3065**
Study of tactual sensing and transmittal of information

Period	Obligations	
09/01/76-05/31/78	FY77: $27,000	TOTAL: $52,000

Prin Invest	NASA Tech Officer	CASE Category
Gilson, R. D	ARC/Dunn, R. S	69-Psych, NEC

NSG 2220 **Ohio State University** **3066**
Environmental and genetic effects on gravity receptors. A morphological, physiological and behavioral study

Period	Obligations	
05/01/77-04/30/78	FY77: $38,000	TOTAL: $38,000

Prin Invest	NASA Tech Officer	CASE Category
Lim, D. J.	ARC/Mehler, W. R.	51-Biology

NSG 5140 **Ohio State University** **3067**
Relative rotational broadening of far ultraviolet spectral lines

Period	Obligations	
12/01/76-05/31/78	FY77: $2,997	TOTAL: $2,997

Prin Invest	NASA Tech Officer	CASE Category
Collins, G. W., II	GSFC/Kupperian, J. E., Jr	11-Astronomy

NSG 5141 **Ohio State University** **3068**
A search for variations in the spectrum of gamma gas

Period	Obligations	
12/01/76-11/30/77	FY77: $2,120	TOTAL: $2,120

Prin Invest	NASA Tech Officer	CASE Category
Slettebak, A.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NAS 2-9431 **Ohio University** **3069**
High speed computer controlled VOR receiver detector

Period	Obligations	
12/01/76-09/01/77	FY77: $29,933	TOTAL: $29,933

Prin Invest	NASA Tech Officer	CASE Category
Lilley, R. W.	ARC/Jackson, C. T	41-Aero Engr
Herold, D.	ARC/Creer, B. Y	

NAS 5-20885 **Ohio University** **3070**
Investigation of the properties structure and dynamics of earth materials

Period	Obligations	
11/11/74-10/31/77	FY77	TOTAL: $37,631

Prin Invest	NASA Tech Officer	CASE Category
Tanuka, T.	GSFC/Bonavito, N.	13-Physics

NGR 36-009-017 **Ohio University** **3071**
Air transportation problems with emphasis on general aviation avionics

Period	Obligations	
02/26/71-11/30/79	FY77 $75,000	TOTAL: $450,458

Prin Invest	NASA Tech Officer	CASE Category
McFarland, R. H.	LARC/Reid, H. J., Jr	45-Elec Engr
	LARC/Mack, W. D	

NSG 7352 **Ohio University** **3072**
Study of mechanism of thigmonorphogensis in plants with special reference to role of ethylene and its significance to research with plants in space

Period	Obligations	
06/05/77-06/14/78	FY77 $30,000	TOTAL: $30,000

Prin Invest	NASA Tech Officer	CASE Category
Jaffe, M. J.	HQ-SB/Halstead, T. W	51-Biology
	HQ-SB/Young, R. S	

NAS 2-7850 **University of Cincinnati** **3073**
Theoretical and experimental study of aerodynamics

Period	Obligations	
10/01/73-10/01/77	FY77	TOTAL: $94,990

Prin Invest	NASA Tech Officer	CASE Category
Tabakoff, W.	ARC/Burke, J. A.	41-Aero Engr

NGR 36-004-061 **University of Cincinnati** **3074**
Research on methods of estimating stability and control derivatives of aircraft with flexible structures

Period	Obligations	
04/21/72-08/31/77	FY77	TOTAL: $111,645

Prin Invest	NASA Tech Officer	CASE Category
Wells, W. R	LARC/Suit, W. T	41-Aero Engr
	LARC/Queijo, M. J	

NGR 36-004-004 — **University of Cincinnati** — **3075**
Two-dimensional flow losses of a turbine with boundary layer injection

Period	Obligations	
06/13/72-03/31/77	FY77	TOTAL $46,851
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tabakoff, W	LERC/Prust, H W, Jr	41-Aero Engr

NGR 36-004-075 — **University of Cincinnati** — **3076**
Jupiter space missions support, orbit computation programs and new astrographic plate constants

Period	Obligations	
11/01/73-05/31/76	FY77.	TOTAL. $31,109
Prin Invest	*NASA Tech Officer*	*CASE Category*
Herget P.	HQ-SL/Brunk, W E. HQ-SL/Fellows, P F	11-Astronomy

NSG 1185 — **University of Cincinnati** — **3077**
Thermal analysis of composite panels of three dimensional reinforced composites

Period	Obligations	
05/01/75-10/31/77	FY77 $8,549	TOTAL $57,184
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nayfeh, A H	LARC/Mikulas, M M, Jr	49-Engr, NEC

NSG 1208 — **University of Cincinnati** — **3078**
The separated supersonic turbulent boundary layer over a wavy wall

Period	Obligations	
07/01/75-09/30/77	FY77	TOTAL $52,394
Prin Invest	*NASA Tech Officer*	*CASE Category*
Polak, A Werle, M J	LARC/Dunavant, J C	41-Aero Engr

NSG 2268 — **University of Cincinnati** — **3079**
A study of numerically generated coordinates for arbitrary geometries

Period	Obligations	
10/01/77-12/31/77	FY77 $11,023	TOTAL $11,023
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ghia, U Ghia, K N	ARC/Inouye, M	41-Aero Engr

NSG 3022 — **University of Cincinnati** — **3080**
Investigation of a new family of semiconductor diodes based upon bulk effects of deep impurities

Period	Obligations	
07/01/74-09/30/78	FY77	TOTAL $84,666
Prin Invest	*NASA Tech Officer*	*CASE Category*
Henderson, H T	LERC/Sundberg, G R	45-Elec Engr

NSG 3024 — **University of Cincinnati** — **3081**
Research into the use of silane pyrolytic deposition methods for SiO2 growth in the construction of stable high energy density capacitors

Period	Obligations	
07/01/74-10/01/78	FY77	TOTAL $55,023
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nevin, J H Henderson, H T	LERC/Grier, N T LERC/Myers, I T	45-Elec Engr

NSG 3045 — **University of Cincinnati** — **3082**
A study of parameters affecting emmissions from turbine engines

Period	Obligations	
04/02/75-12/31/77	FY77	TOTAL $63,546
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kauffman, C W	LERC/Jones, R T	41-Aero Engr

NSG 3066 — **University of Cincinnati** — **3083**
Study of the fluid mechanics of a radial turbine scroll

Period	Obligations	
07/01/75-06/30/78	FY77 $835	TOTAL $46,213
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tabakoff, W	LERC/Stepka, F S	41-Aero Engr

NSG 3091 — **University of Cincinnati** — **3084**
Study of suitable isomers for gamma ray lasers

Period	Obligations	
12/15/75-01/15/78	FY77 $20,268	TOTAL $34,268
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jha, S	LERC/Blue, J W LERC/Leonard, R F	13-Physics

NSG 3147 — **University of Cincinnati** — **3085**
High-temperature low-cycle fatigue and crack propagation

Period	Obligations	
06/01/77-06/01/78	FY77 $25,630	TOTAL $25,630
Prin Invest	*NASA Tech Officer*	*CASE Category*
Antolovich, S D	LERC/Miner, R V, Jr	47-Materials Engr

NAS 3-19699 — **University of Dayton** — **3086**
ATS user experiments history

Period	Obligations	
05/15/75-05/14/77	FY77 $1,906	TOTAL $48,506
Prin Invest	*NASA Tech Officer*	*CASE Category*
Engler, N A	LERC/Hein, G F	73-History

NAS 3-20365 — **University of Dayton** — **3087**
Space broadcast communications technology value assessment methodology study

Period	Obligations	
06/24/76-03/31/77	FY77	TOTAL $95,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Martino, J	LERC Stevenson, S M LERC Sivo, J N	89-Env Sci, NEC

OHIO (Continued)

NAS 3-20392 **University of Dayton** **3088**
Continuation of the study for development of ATS and communications technology satellite user experiments history

Period	Obligations	
02/04/77-01/04/78	FY77 $49,904	TOTAL $49,904
Prin Invest	*NASA Tech Officer*	*CASE Category*
Engler, N A. Scheffler, F. L	LERC/Entile, L. G	42-Astro Engr

NAS 6-2456 **University of Dayton** **3089**
Atmospheric phenomena associated with falling spheres

Period	Obligations	
03/25/74-11/15/77	FY77 $52,181	TOTAL $136,643
Prin Invest	*NASA Tech Officer*	*CASE Category*
Luers, J K	WFC/Duke, J R WFC/Schmidlin, F J.	31-Atmos Sci

NAS 8-31294 **University of Dayton** **3090**
Examination of requirements and methods for reporting atmospheric information

Period	Obligations	
01/16/75-01/31/78	FY77 $15,081	TOTAL $112,783
Prin Invest	*NASA Tech Officer*	*CASE Category*
Luers, J K Engler, N A	MSFC/Camp, D. W MSFC/Alexander, M	41-Aero Engr

NAS 8-32111 **University of Dayton** **3091**
Turbulence study

Period	Obligations	
07/21/76-03/03/78	FY77 $34,648	TOTAL $64,546
Prin Invest	*NASA Tech Officer*	*CASE Category*
Luers, J. K	MSFC/Camp, D MSFC/Alexander, M	41-Aero Engr

NSG 3063 **University of Toledo** **3092**
Multivariable control theory with application to airbreathing propulsion systems

Period	Obligations	
06/01/75-12/31/76	FY77	TOTAL $25,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leininger, G G	LERC/Lehtinen, B	45-Elec Engr

NSG 3084 **University of Toledo** **3093**
Multivariable control and sensor evaluation for integrated air breathing propulsion systems

Period	Obligations	
01/01/76-12/31/79	FY77	TOTAL $52,790
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leininger, G. G	LERC/Lehtinen, B	45-Elec Engr

NSG 3099 **University of Toledo** **3094**
Energy transfer mechanism in a laser-sustained flowing gas plasma

Period	Obligations	
03/15/76-11/14/77	FY77	TOTAL $18,604
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rush, W F	LERC/Connolley, D J	13-Physics

NSG 3121 **University of Toledo** **3095**
Mass transport phenomena between bubbles and dissolved gases in liquids in a zero-g environment

Period	Obligations	
09/01/76-09/01/78	FY77: $2,000	TOTAL $2,001
Prin Invest	*NASA Tech Officer*	*CASE Category*
DeWitt, K J	LERC/LaBus, T L.	49-Engr, NEC

NSG 3139 **University of Toledo** **3096**
Stability analysis of wind turbines with long, flexible blades

Period	Obligations	
02/22/77-02/21/78	FY77: $42,904	TOTAL $42,904
Prin Invest	*NASA Tech Officer*	*CASE Category*
Koza, K. R.	LERC/Spera, D A. LERC/Baldwin, D. H	41-Aero Engr

NSG 3156 **University of Toledo** **3097**
Analysis of the stirling engine oil pumping ring seal

Period	Obligations	
07/01/77-06/30/78	FY77 $21,894	TOTAL $21,894
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keith, T G Smith, P J	LERC/Hady, W. F LERC/Ludwig, L. P.	46-Mech Engr

NSG 5183 **University of Toledo** **3098**
Research of the temporal eye-blanketing effects for photometric variations

Period	Obligations	
07/01/77-06/30/78	FY77 $4,899	TOTAL $4,899
Prin Invest	*NASA Tech Officer*	*CASE Category*
Molnar, M R	GSFC/Kupperian, J E., Jr	11-Astronomy

NSG 5207 **University of Toledo** **3099**
Coordinated copernicus and ground based observations of the radio binaries

Period	Obligations	
09/01/77-08/31/78	FY77 $2,818	TOTAL $2,818
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bopp, B W	GSFC/Kupperian, J E., Jr.	11-Astronomy

NSG 7041 **University of Toledo** **3100**
Measurement of the ultraviolet surface brightness of reflection nebulae with the Dutch national satellite

Period	Obligations	
12/15/74-03/15/78	FY77	TOTAL $29,112
Prin Invest	*NASA Tech Officer*	*CASE Category*
Witt, A N	HQ-SA/Rosendhal, J D HQ-SA/Roman, N G	11-Astronomy

NSG 7138 **University of Toledo** **3101**
Satellite ultraviolet data analysis program

Period	Obligations	
05/01/75-04/30/78	FY77 $11,191	TOTAL $31,030
Prin Invest	*NASA Tech Officer*	*CASE Category*
Molnar, M R.	HQ-SA/Roman, N G HQ-SA/Rosendhal, J D	11-Astronomy

OHIO (Continued)

NSG 7301 — **University of Toledo** — **3102**
Physical study of comets

Period	Obligations	
01/01/77-12/31/77	FY77: $19,928	TOTAL: $19,928
Prin Invest	*NASA Tech Officer*	*CASE Category*
Delsemme, A H	HQ-SL/Donn, B. D. HQ-SL/Fellows, R F	11-Astronomy

W-14168 — **University of Toledo** — **3103**
The proceedings of International Astronautical Union Colloquium

Period	Obligations	
09/01/76-08/31/77	FY77	TOTAL: $4,723
Prin Invest	*NASA Tech Officer*	*CASE Category*
Delsemme, A H	HQ-SL/Fellows, R. M	19-Phys Sci, NEC

NSG 3067 — **Wilberforce University** — **3104**
Synthesis of specialized organic compounds

Period	Obligations	
05/01/75-12/31/77	FY77: $21,000	TOTAL: $41,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stickney, P B.	LERC/Hsu, L C LERC/Sheibley, D W.	12-Chemistry

NSG 1417 — **Wright State University** — **3105**
Computation of unsteady stability derivatives from a simplified aerodynamic force model

Period	Obligations	
09/01/77-08/31/78	FY77: $29,904	TOTAL: $29,904
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wells, W R	LARC/Quejo, M J LARC/Riley, D R	41-Aero Engr

NSG 2034 — **Wright State University** — **3106**
Medical applications of space-related research

Period	Obligations	
07/01/74-12/01/78	FY77: $18,000	TOTAL: $49,896
Prin Invest	*NASA Tech Officer*	*CASE Category*
Beljan, J R	ARC/Young, D R	53-Other Medical

NCA 2-890701 — **Youngstown State University** — **3107**
Slotted wall interference in subsonic wind tunnels using non-homogeneous wall boundary conditions

Period	Obligations	
01/01/77-11/30/77	FY77: $6,974	TOTAL: $6,974
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pejack, E R	RC/Steinle, F W., Jr	41-Aero Engr

OKLAHOMA

NAS 2-7273 — **Oklahoma State University** — **3108**
Operation of arc tour & visitor program for FY 73

Period	Obligations	
10/26/72-07/31/77	FY77:	TOTAL: $304,167
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wiggins, K. E	ARC/Miller, S A ARC/King, L. D	99-Multi-Discip

NCA 2-575701 — **Oklahoma State University** — **3109**
Evaluation method for transonic cone boundary layer transition data by means of computer simulation

Period	Obligations	
11/01/76-09/30/77	FY77: $9,300	TOTAL: $9,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tiederman, W G	ARC/Steinle, F W., Jr	41-Aero Engr

NASW 2881 — **Southeastern Oklahoma State College** — **3110**
Operation of the Technology Use Studies Center

Period	Obligations	
01/01/76-12/31/76	FY77	TOTAL: $73,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gold, C. H	HQ-KT/Bivins, R G HQ-KT/Voris, R M	99-Multi-Discip

NASW 3007 — **Southeastern Oklahoma State College** — **3111**
Operation of the Technology Use Studies Center

Period	Obligations	
01/01/77-12/31/77	FY77: $75,000	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gold, C H	HQ KT/Bivins, R G	99-Multi-Discip

NSG 802 — **Southeastern Oklahoma State College** — **3112**
Analysis of thermophilic microorganisms & sterilization

Period	Obligations	
05/23/74-09/30/78	FY77: $24,796	TOTAL: $50,805
Prin Invest	*NASA Tech Officer*	*CASE Category*
Robinson, J L	KSC/Bostwick, L G.	51-Biology

NAS 1-14986 — **University of Oklahoma - Norman** — **3113**
Wing slat development program

Period	Obligations	
06/22/77-09/21/77	FY77: $17,751	TOTAL: $17,751
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bergey, K. H Leonard, R L	LARC/Hassell, J L., Jr	41-Aero Engr

NAS 8-31333 — **University of Oklahoma - Norman** — **3114**
Study of the nature of atmospheric variability represented by data obtained on AVE experiment

Period	Obligations	
02/27/75-01/31/77	FY77	TOTAL: $41,995
Prin Invest	*NASA Tech Officer*	*CASE Category*
Inman, R L	MSFC/Turner, R E MSFC/Vaughn, W W	31-Atmos Sci

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OKLAHOMA (Continued)

NAS 8-31377 **University of Oklahoma - Norman** **3115**
Integrating upper and lower atmospheric wind profiles and statistics

Period	*Obligations*	
03/17/75-01/21/78	FY77: $39,969	TOTAL: $64,964
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCarthy, J.	MSFC/Camp, D. W.	31-Atmos Sci
Blick, E. F	MSFC/Alexander, M. A.	

NASW 3020 **University of Oklahoma - Norman** **3116**
Symposium on Aeronautics and Space Aimed at Motivating Minorities and Women

Period	*Obligations*	
03/17/77-04/30/77	FY77: $27,205	TOTAL: $27,205
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thomas, G.	HQ-U/Kelly, M.	99-Multi-Discip

NGT 37-003-760 **University of Oklahoma - Norman** **3117**
Training of undergraduate students in sciences and engineering

Period	*Obligations*	
06/01/76-05/31/78	FY77: $14,000	TOTAL: $24,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thomas, G.	HQ-P/Pohly, J. G.	49-Engr, NEC
	HQ-U/Jenkins, H. G.	

NSG 1183 **University of Oklahoma - Norman** **3118**
Piezoresistive solid state pressure sensor

Period	*Obligations*	
06/01/75-08/31/77	FY77: $26,659	TOTAL: $95,910
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kahng, S. K.	LARC/Gross, C.	45-Elec Engr
	LARC/Ocheltree, S. L.	

NSG 1404 **University of Oklahoma - Norman** **3119**
Temperature dependence of silicon pressure sensors

Period	*Obligations*	
03/15/77-03/14/78	FY77: $51,136	TOTAL: $51,136
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kahng, S. K.	LARC/Bryant, F. R.	13-Physics
	LARC/Feller, C. F.	

OREGON

NSG 3054 **Oregon Graduate Center** **3120**
Fabrication and surface characterization of composite refractory compounds suitable for thermionic conveters

Period	*Obligations*	
12/01/74-11/30/77	FY77: $40,000	TOTAL: $159,320
Prin Invest	*NASA Tech Officer*	*CASE Category*
Swanson, L. S.	LERC/Morris, J. F.	47-Materials Engr

NAS 5-23738 **Oregon State University** **3121**
Ocean color ground truth support

Period	*Obligations*	
10/21/76-10/30/77	FY77: $66,558	TOTAL: $66,558
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zaneveld, R. V.	GSFC/Mueller, J.	39-Env Sci, NEC
Pak, H.		

NAS 9-14860 **Oregon State University** **3122**
Assessment of the impact of increased solar ultraviolet radiation upon marine ecosystems

Period	*Obligations*	
10/08/75-12/08/77	FY77: $75,000	TOTAL: $135,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanDyke, H.	JSC/Nachtwey, D. S.	51-Biology

NASW 3012 **Oregon State University** **3123**
Symposium on Aeronautics and Space Aimed at Motivating Minorities and Women in Science and Engineering

Period	*Obligations*	
01/14/77-05/30/77	FY77: $28,347	TOTAL: $28,347
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bowman, B.	HQ-U/Monroe, R.	99-Multi-Discip

NCA 2-586702 **Oregon State University** **3124**
Pacific Northwest Regional Commissions's land resource inventory demonstration project

Period	*Obligations*	
08/01/77-11/01/77	FY77: $6,715	TOTAL: $6,715
Prin Invest	*NASA Tech Officer*	*CASE Category*
Murray, R. J.	ARC/Wilson, D. E.	39-Env Sci, NEC

NGL 38-002-020 **Oregon State University** **3125**
Study of elemental abundances in meteorite and terrestrial matter

Period	*Obligations*	
08/26/66-02/28/78	FY77:	TOTAL: $413,622
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schmitt, R. A.	HQ-SL/Bryson, R. P.	32-Geological Sci
	HQ-SL/Roberson, F. I.	

NGL 38-002-039 **Oregon State University** **3126**
Lunar sample analysis

Period	*Obligations*	
01/19/71-01/31/80	FY77: $73,370	TOTAL: $449,620
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schmitt, R. A.	JSC/Harris, J. W.	13-Physics

NGL 38-002-053 **Oregon State University** **3127**
Development and operat. of an environmental remote sensing applications laboratory

Period	*Obligations*	
03/16/72-03/31/80	FY77: $150,000	TOTAL: $725,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schrumpf, B. J.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NSG 4013 **Oregon State University** **3128**
Problems associated with flight control in turbulence

Period	Obligations	
09/01/77-09/30/78	FY77 $23,818	TOTAL $23,818
Prin Invest	NASA Tech Officer	CASE Category
Ruzicka, J	DFRC/Ihiff, K W	41-Aero Engr

NSG 7178 **Oregon State University** **3129**
Examination of the suggested modes of origin of channels found on the Moon and Mars

Period	Obligations	
01/01/76-05/31/78	FY77 $20,300	TOTAL $35,660
Prin Invest	NASA Tech Officer	CASE Category
Komar, P D	HQ-SL/Dwornik, S E	32-Geological Sci
	HQ-SL/Wahmann, R	

NCA 2-587701 **University of Oregon - Eugene** **3130**
Variability in BE stars

Period	Obligations	
02/01/77-09/30/77	FY77 $1,186	TOTAL $1,186
Prin Invest	NASA Tech Officer	CASE Category
Holt, J	ARC Scargle, J D	13-Physics
Radostitz, J V	ARC/Erickson, E F	
Sykes, M		

NGL 38-003-022 **University of Oregon - Eugene** **3131**
Lunar sample analysis

Period	Obligations	
02/09/71-01 31/80	FY77 $63,489	TOTAL $500,804
Prin Invest	NASA Tech Officer	CASE Category
Weill, D F	JSC/Harris, J W	13-Physics

NGR 38-003-020 **University of Oregon - Eugene** **3132**
Inspection of petrologically significant physical and chemical properties of the silicate melts

Period	Obligations	
06/01/70-02/28/80	FY77 $131,247	TOTAL $655,641
Prin Invest	NASA Tech Officer	CASE Category
Weill, D F	HQ-SL/Goldstein, B E	
	HQ-SL/Quaide, W L	32-Geological Sci

NGR 38-003-036 **University of Oregon - Eugene** **3133**
Transition probability in multiply ionized atoms

Period	Obligations	
07/03/72-10/31/77	FY77 $41,500	TOTAL $137,500
Prin Invest	NASA Tech Officer	CASE Category
Crasemann, B	ARC/Whiting, E E	13-Physics
	ARC/Arnold, J O	

NSG 2208 **University of Oregon - Eugene** **3134**
A study of confinement and heat transfer properties of liquid cryogens

Period	Obligations	
03/01/77-02/28/78	FY77 $50,837	TOTAL $50,837
Prin Invest	NASA Tech Officer	CASE Category
Donnelly, R J	ARC/Vorreiter, J W	13-Physics
Ostermeier, R M	ARC/Pappas, C C	
Kittel, P.		

NSG 7360 **University of Oregon - Eugene** **3135**
Far-infrared measurements of trace constituents

Period	Obligations	
06/01/77-04 30 78	FY77 $43,880	TOTAL $43,880
Prin Invest	NASA Tech Officer	CASE Category
Nolt, I G	HQ-SL/Tilford, S G	31-Atmos Sci
Radostitz, J V	HQ-SL/Simon, N K	

NAS 8-30887 **University of Oregon-Health Sci Ctr** **3136**
Electrokinetic characterization of aldehyde fixed red blood cells, kidney cells, lymphocytes and chamber wall coatings

Period	Obligations	
07 01/74-03/31/76	FY77	TOTAL $32,873
Prin Invest	NASA Tech Officer	CASE Category
Knox, R J	MSFC/Allen, R E	51-Biology
	MSFC/Howell, E S	

NAS 8-31386 **University of Oregon-Health Sci Ctr** **3137**
Definition of performance specifications for automated analytical electrophoresis facility

Period	Obligations	
04 07/75-02/28/76	FY77	TOTAL $35,213
Prin Invest	NASA Tech Officer	CASE Category
Brooks, D E	MSFC/Harwell, R E	59-Life Sci, NEC
Seaman, G V	MSFC/Allen, R E	

NAS 8-31899 **University of Oregon-Health Sci Ctr** **3138**
Candidate space processing techniques for biomaterials other than preparation of electrophoresis

Period	Obligations	
04/09/76-12/31/76	FY77	TOTAL $19,979
Prin Invest	NASA Tech Officer	CASE Category
Brooks, D E	MSFC/Nerren, B H	51-Biology
	MSFC/Allen, R E	

NAS 8-32162 **University of Oregon-Health Sci Ctr** **3139**
Analytical study of electrophoretic characterization of kidney cells

Period	Obligations	
08/06/76-04/05/78	FY77 $34,992	TOTAL $53,741
Prin Invest	NASA Tech Officer	CASE Category
Knox, R J	MSFC/Scott, E E	59-Life Sci, NEC
	MSFC/Miller, T Y	

OREGON (Continued)

NAS 8-32353 **University of Oregon-Health Sci. Ctr.** **3140**
SPAR project: Counter current distribution of biologicals

Period	Obligations	
12/01/7[illegible]-12/31/77	FY77 $57,665	TOTAL $57,665
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Brooks, D. E.	MSFC/Reeves, F. A. MSFC/Chassay, R. P.	51-Biology

NAS 8-32609 **University of Oregon-Health Sci. Ctr.** **3141**
Electrophoretic separator experiments

Period	Obligations	
08/08/77-06/07/78	FY77 $15,000	TOTAL $15,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Seaman, G. V.	MSFC/Reeves, F. A. MSFC/Snyder, R.	51-Biology

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NSG 3136 **Bucknell University** **3142**
Development of a predictive model for thermal and thermo-oxidative stability of PMR polyimide graphite fiber composites

Period	Obligations	
02/01/77-10/31/78	FY77 $14,032	TOTAL $14,032
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Snyder, W. J.	LERC/Gluyas, R. E. LERC/Serafini, T. T.	43 Chem. Engr.

NAS 3-20370 **Carnegie - Mellon University** **3143**
Evaluation of the mechanical properties of electroslag refined Fe-12 Ni alloys

Period	Obligations	
09/02/76-07/02/77	FY77	TOTAL $36,977
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Bhat, G. K.	LERC/Witzke, W. R.	47-Materials Engr.

NGR 39-087-003 **Carnegie - Mellon University** **3144**
Investigation of the effects of microstructure on fracture toughness of high-strength alloys

Period	Obligations	
05/01/68-01/31/77	FY77	TOTAL $224,351
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Low, J. R., Jr.	LERC/Klopp, W. D. LERC/Brown, W. F., Jr.	47-Materials Engr.

NGR 39-087-021 **Carnegie - Mellon University** **3145**
Studies of heterodyne solar cell performance

Period	Obligations	
03/26/70-04/30/78	FY77 $30,203	TOTAL $286,019
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Milnes, A. G.	LARC/Walker, G. H. LARC/Conway, E. J.	13-Physics

NGR 39-087-047 **Carnegie - Mellon University** **3146**
Investigation of the effects of microstructure on the fracture toughness of high strength titanium alloys

Period	Obligations	
10/09/72-11/30/76	FY77	TOTAL: $75,123
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Low, J. R., Jr. VanStone, R. H.	LERC/Klopp, W. D. LERC/Brown, W. F., Jr.	47-Materials Engr.

NGR 39-087-053 **Carnegie - Mellon University** **3147**
Special finite elements for cracks in elasto-plastic media

Period	Obligations	
09/01/73-10/07/77	FY77 $35,000	TOTAL: $143,436
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Swedlow, J. L.	LERC/Srawley, J. E. LERC/Gross, B.	46-Mech. Engr.

NSG 1367 **Carnegie - Mellon University** **3148**
Finite element analysis of periodic transonic flow problems

Period	Obligations	
01/01/77-12/31/77	FY77: $11,486	TOTAL $11,486
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Fix, G. J.	LARC/Bland, S. R. LARC/Bennett, R. M.	41-Aero. Engr.

NSG 3023 **Carnegie - Mellon University** **3149**
Steady and dynamic performance of liquid face seals

Period	Obligations	
07/01/74-06/28/77	FY77	TOTAL $45,800
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hughes, W. F.	LERC/Ludwig, L. P. LERC/Zuk, J.	46-Mech. Engr.

NAS 1-14393 **Drexel University** **3150**
Science support for the limb infrared monitor of the stratosphere experiment

Period	Obligations	
04/01/76-10/31/78	FY77 $27,000	TOTAL: $37,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
House, F. B.	LARC/Russell, J. M., III LARC/James, R. L., Jr.	31-Atmos. Sci.

NAS 5-22946 **Drexel University** **3151**
Science support for the earth radiation budget experiment on Nimbus G

Period	Obligations	
01/12/76-01/11/79	FY77: $20,000	TOTAL $40,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
House, F. B.	GSFC/Nelson, F. D.	13-Physics

NAS 8-31235 **Drexel University** **3152**
Atmospheric variability experiment study using a numerical weather prediction model

Period	Obligations	
02/03/75-03/31/77	FY77	TOTAL $79,900
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Kreitzberg, C. W.	MSFC/Hill, K.	31-Atmos. Sci.

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NSG 3090 **Drexel University** **3153**
Theory for nonlinear reaction-diffusion phenomena with application to free radical recombination

Period 10/01/75-10/31/77 *Obligations* FY77 $28,500 TOTAL $55,500
Prin. Invest. Rosen, G. H. *NASA Tech. Officer* LERC/Zeleznik, F. J. *CASE Category* 21-Mathematics

NSG 3128 **Drexel University** **3154**
Interface characterization of metal matrix composites

Period 10/01/76-11/01/77 *Obligations* FY77 $35,000 TOTAL $35,000
Prin. Invest. Lawley, A. *NASA Tech. Officer* LERC/Grimes, H. H. *CASE Category* 47-Materials Engr
Koczak, M. J. LERC/Lad, R. A.

NSG 5162 **Drexel University** **3155**
Utilization of satellite data and regional scale numerical models in short range weather forecasting

Period 03/01/77-02/28/78 *Obligations* FY77 $135,000 TOTAL $135,000
Prin. Invest. Kreitzberg, C. W. *NASA Tech. Officer* GSFC/Adler, R. F. *CASE Category* 31-Atmos Sci

NSG 6007 **Drexel University** **3156**
Electrochemical concentration cell ozone sonde performance tests

Period 05/01/76-11/30/77 *Obligations* FY77 $47,500 TOTAL $57,600
Prin. Invest. Brandy, A. R. *NASA Tech. Officer* WFC/Holland, A. C. *CASE Category* 31-Atmos Sci

NAS 5-20865 **Hahnemann Medical College & Hospital** **3157**
Detection of bacteria in urine by an ATP luciferase procedure

Period 10/18/74-08/30/77 *Obligations* FY77 $15,000 TOTAL $158,494
Prin. Invest. Gutekunst, R. R. *NASA Tech. Officer* GSFC Chappelle, E. *CASE Category* 59-Life Sci, NEC

NAS 8-31706 **Lehigh University** **3158**
Space processing applications shuttle payloads requirements specification study

Period 09/26/75-03/25/76 *Obligations* FY77 TOTAL $4,895
Prin. Invest. VanDerHoff, J. W. *NASA Tech. Officer* MSFC Taylor, K. R. *CASE Category* 19-Phys Sci, NEC
MSFC Poe, J. W.

NAS 8-31707 **Lehigh University** **3159**
Space processing applications shuttle payloads requirements specification study

Period 09/26/75-03/25/76 *Obligations* FY77 TOTAL $4,895
Prin. Invest. Micale, F. J. *NASA Tech. Officer* MSFC Taylor, K. R. *CASE Category* 19-Phys Sci, NEC
VanDerHoff, J. W. MSFC Poe, J. W.

NAS 8-32124 **Lehigh University** **3160**
Analysis of results of ASTP experiment in electrophoresis

Period 07/30/76-07/31/77 *Obligations* FY77 TOTAL $10,390
Prin. Invest. VanDerHoff, J. W. *NASA Tech. Officer* MSFC/Scott, F. J. *CASE Category* 51-Biology

NAS 8-32399 **Lehigh University** **3161**
Heterogeneous chemical reactions - Preparational monodisperse latexes

Period 01/17/77-06/30/77 *Obligations* FY77 $24,965 TOTAL $24,965
Prin. Invest. VanDerHoff, J. *NASA Tech. Officer* MSFC Reeves, F. A. *CASE Category* 61-Biol Aspects
MSFC/Chassay, R. A.

NAS 8-32406 **Lehigh University** **3162**
Development of a stable low-electroosmotic mobility coating for use in electrophoresis systems

Period 05/25/77-05/24/78 *Obligations* FY77 $40,000 TOTAL $40,000
Prin. Invest. VanDerHoff, J. W. *NASA Tech. Officer* MSFC Kornfield, D. M. *CASE Category* 51-Biology
Micale, F. J. MSFC Snyder, R. S.

NAS 8-32657 **Lehigh University** **3163**
Evaluation of surface properties in space processing applications rocket electrophoresis

Period 08/18/77-08/17/78 *Obligations* FY77 $10,000 TOTAL $10,000
Prin. Invest. VanDerHoff, J. W. *NASA Tech. Officer* MSFC Reeves, F. A. *CASE Category* 59-Life Sci, NEC
Micale, F. J. MSFC Snyder, R. S.
El-Asser, M. S.

NCA 2-380501 **Lehigh University** **3164**
Development of stress corrosion cracking test methods

Period 11/01/74-10/31/77 *Obligations* FY77 TOTAL $10,000
Prin. Invest. Wei, R. P. *NASA Tech. Officer* ARC Zill, L. P. *CASE Category* 47-Materials Engr

NCA 8-123 **Lehigh University** **3165**
Research on production of monodisperse polymer colloids

Period 04/14/76-04/13/77 *Obligations* FY77 TOTAL $7,000
Prin. Invest. Poehlein, G. W. *NASA Tech. Officer* MSFC Fichtl, G. H. *CASE Category* 12-Chemistry
VanDerHoff, J. W. MSFC Camp, D. W.

NGT 39-007-007 **Lehigh University** **3166**
Investigation of solidification structure & eutectic alloys including consideration of properties control

Period *Obligations*
02/17/65-07/01/78 FY77 TOTAL $417,268
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kraft, R. W LERC/Ashbrook, R. L
Hertzberg, R. W 47-Materials Engr
Notis, M. R

NGR 39-007-011 **Lehigh University** **3167**
Investigation of fatigue-crack propagation in thin plates and shells

Period *Obligations*
11/30/64-06/30/78 FY77 $30,000 TOTAL $397,845
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Erdogan, F LARC/Everett, R. A., Jr
LARC/Fichter, W. B 21-Mathematics

NGR 39-007-043 **Lehigh University** **3168**
Shock and thermal history of unusual iron meteorites

Period *Obligations*
05/24/71-03/31/78 FY77 $26,365 TOTAL $172,240
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldstein, J. I HQ-SL/French, B. M 32-Geological Sci
Lin, L. S HQ-SL/Quaide, W. L

NGR 39-007-056 **Lehigh University** **3169**
Lunar sample analysis

Period *Obligations*
01/12/71-01/31/80 FY77 $59,265 TOTAL $401,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldstein, J. I JSC/Harris, J. W 12-Chemistry

NGR 39-007-061 **Lehigh University** **3170**
Investigation of generation of X-rays in close binary stars

Period *Obligations*
03/10/73-08/31/78 FY77 TOTAL $28,962
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCluskey, G. E., Jr JSC/Kondo, Y 11-Astronomy

NGR 39-007-064 **Lehigh University** **3171**
Lunar sample analysis

Period *Obligations*
06/07/71-01/31/78 FY77 $31,475 TOTAL $314,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sclar, C. B JSC/Harris, J. W 13-Physics

NSG 3162 **Lehigh University** **3172**
Blade flutter in compressors and fans - Numerical simulation of aerodynamic loading

Period *Obligations*
01/01/78-12/31/80 FY77 $67,500 TOTAL $67,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rockwell, D. O LERC/Batterton, P. G 41-Aero Engr
Johnson, S. H LERC/Kurkov, A. P

NAS 5-23800 **Lincoln University** **3173**
Medical information management system

Period *Obligations*
11/22/76-08/30/78 FY77 $78,336 TOTAL $78,336
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frankowsky, J. W GSFC/Alterescu, S 53-Other Medical
KSC/Buchanan, P

NGT 39-108-750 **Lincoln University** **3174**
Training of undergraduate students in sciences and engineering fields

Period *Obligations*
06/01/75-05/31/78 FY77 $7,000 TOTAL $21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, W., Jr HQ-P/Pohly, J. G 49-Engr, NEC
HQ-U/Jenkins, H. G

NSG 5008 **Lincoln University** **3175**
Application of Medical Information Management System (MIMS)

Period *Obligations*
08/01/74-11/30/76 FY77 TOTAL $66,678
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frankowsky, J. W GSFC/Alterescu, S 52-Clinical Med

NAS 5-22822 **Pennsylvania State University** **3176**
Study of nature and subsurface characters of lineaments in Pennsylvania

Period *Obligations*
01/13/76-06/30/77 FY77 TOTAL $35,031
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gold, D. P GSFC/Podwysocki, M. H
Alexander, S. S GSFC/Allenby, R. J 32-Geological Sci

NAS 5-23859 **Pennsylvania State University** **3177**
U-2 and LANDSAT data processing and intralab analysis support

Period *Obligations*
01/21/77-11/15/77 FY77 $69,308 TOTAL $69,308
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McMurtry, G. J GSFC/Alford, W 39-Env. Sci, NEC

NAS 5-24264 **Pennsylvania State University** **3178**
Applications of satellite data to study urban heating patterns

Period *Obligations*
09/23/77-11/30/78 FY77 $32,500 TOTAL $32,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carlson, T. N GSFC/Oseroff, H 32-Geological Sci

NAS 5-24329 **Pennsylvania State University** **3179**
Technology transfer study

Period *Obligations*
10/01/77-01/27/79 FY77 $36,648 TOTAL $36,648
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feller, F. R GSFC/Golden, L. S 99-Multi-Discip

NAS 6-2602 **Pennsylvania State University** **3180**
Develop a synoptic ionization measurement system

Period	Obligations	
11/01/74-10/31/76	FY77	TOTAL $72,724
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Hale, L. C	WFC/Duke, J. R WFC/Schmidlin, F. J	19-Phys. Sci, NEC

NAS 6-2726 **Pennsylvania State University** **3181**
Stratosphere and mesosphere structure and circulation studies

Period	Obligations	
03/04/76-03/03/77	FY77 $24,978	TOTAL $49,921
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Olivero, J	WFC/Duke, J. R	31-Atmos. Sci

NAS 6-2818 **Pennsylvania State University** **3182**
Develop a two-dimensional numerical model to test the relationship of rapid mesospheric warmings to intense tropospheric convection

Period	Obligations	
03/01/77-02/28/78	FY77 $21,667	TOTAL $21,667
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Clark, J. H	WFC, Schmidlin, F. J	31-Atmos. Sci

NAS 6-2826 **Pennsylvania State University** **3183**
Analysis of stratospheric and mesospheric data

Period	Obligations	
04/18/77-04/17/78	FY77 $11,000	TOTAL $11,000
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Hale, F. C	WFC/Schmidlin, F. J WFC/Duke, J. R	31-Atmos. Sci

NAS 8-32046 **Pennsylvania State University** **3184**
Dynamic structure of stable atmospheric boundary layer

Period	Obligations	
09/09/76-03/10/78	FY77	TOTAL $34,837
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Blackadar, A. K	MSFC Fichtl, G. H MSFC Camp, D. W	31-Atmos. Sci

NGL 39-009-003 **Pennsylvania State University** **3185**
Research on electron densities in upper ionosphere, including studies of rocket & separating capsule experimental techniques

Period	Obligations	
03/01/61-10/31/79	FY77 $102,000	TOTAL $1,978,661
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Nisbet, J. S	HQ-ST/Cauffman, D. P HQ-ST/Schmerling, E. R	13-Physics

NGL 39-009-007 **Pennsylvania State University** **3186**
Investigation & analysis of flow phenomena of secondary motions in axial flow inducers

Period	Obligations	
12/15/63-02/28/78	FY77	TOTAL $279,750
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Lakshminarayana, B	LERC/Britsch, W. R	41-Aero. Engr

NGL 39-009-010 **Pennsylvania State University** **3187**
Research to establish criteria for recognition of ancient meteorite impact craters whose characteristic surface forms have been obliterated by erosion

Period	Obligations	
08/08/63-12/31/78	FY77	TOTAL $169,563
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Gold, D. P	HQ-SL/Bryson, R. P HQ-SL/Allenby, R. J	32-Geological Sci

NGL 39-009-032 **Pennsylvania State University** **3188**
Study and evaluation of the constant-momentum mass spectrometer for ion analysis in the D and E regions of the ionosphere

Period	Obligations	
05/28/65-11/30/77	FY77 $65,000	TOTAL $707,932
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Kendall, B. R	WFC/Ballance, C. W., Jr WFC/Gray, J. W	13-Physics

NGL 39-009-172 **Pennsylvania State University** **3189**
Investigation of characteristics of a propeller operating at static conditions

Period	Obligations	
04/17/70-03/31/78	FY77	TOTAL $165,000
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Eisenhuth, J. J	LARC Mantay, W. R	41-Aero. Engr

NGR 39-009-034 **Pennsylvania State University** **3190**
A study of low-cycle fatigue under multiaxial in-phase and out-of phase strain cycling

Period	Obligations	
06/26/68-01/01/78	FY77 $30,000	TOTAL $198,634
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Zamrik, S. Y	LERC Hirschberg, M. H LERC Halford, G. R	47-Materials Engr

NGR 39-009-077 **Pennsylvania State University** **3191**
Investigation of near critical and supercritical burning of fuel droplets

Period	Obligations	
08/17/66-01/01/78	FY77	TOTAL $310,185
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Faeth, G. M	LERC Priem, R. J	42-Astro. Engr

NGR 39-009-180 **Pennsylvania State University** **3192**
Detection of microorganisms in their natural habitat

Period	Obligations	
06/12/70-09/30/77	FY77 $45,842	TOTAL $250,983
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Casida, L. E., Jr	HQ-SB, Young, R. S	51-Biology

NGR 39-009-270 **Pennsylvania State University** **3193**
Study in jet noise

Period	Obligations	
06/25/73-08/30/77	FY77	TOTAL $45,000
Prin. Invest.	**NASA Tech. Officer**	**CASE Category**
Arndt, R. E	LERC, Stone, J. R	41-Aero. Engr

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NGR 39-009-275 **Pennsylvania State University** **3194**
Investigation of unsteady pressure distribution on blades of an axial flow fan

Period	*Obligations*	
09 01 73-08 29 77	FY 77	TOTAL $45,082
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Henderson, R E	LERC Dittmar, J H	46-Mech Engr

NSG 1308 **Pennsylvania State University** **3195**
A proposed study of propellers for general aviation aircraft

Period	*Obligations*	
07 01 76-10 31 77	FY 77	TOTAL $49,872
Principal Investigator	*NASA Technical Officer*	*CASE Category*
McCormick, B W	LARC Fisher, B D LARC Hall, A W	41-Aero Engr

NSG 1328 **Pennsylvania State University** **3196**
An investigation of optimization techniques for drawing computer graphics displays

Period	*Obligations*	
09 07 76-09 06 77	FY 77	TOTAL $18,000
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Stocker, P R	LARC Smith, R E	22-Computer Sci

NSG 1359 **Pennsylvania State University** **3197**
Study of elastomer-modified polyamide systems

Period	*Obligations*	
12 03 76-12 02 77	FY 77 $10,230	TOTAL $10,230
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Galanti, A V	LARC Price, H E LARC Johnston, N J	43-Chem Engr

NSG 1387 **Pennsylvania State University** **3198**
Growth, perfection, and characterization of triglycine sulfate. A model for zero gravity growth

Period	*Obligations*	
03 01 [illegible] 08 31 78	FY 77 $30,000	TOTAL $80,000
Principal Investigator	*NASA Technical Officer*	*CASE Category*
White, W B Vedam, K Spear, K E	LARC Lapp, A L LARC Breckenridge, R A	47-Materials Engr

NSG 1457 **Pennsylvania State University** **3199**
Wind tunnel simulation and control

Period	*Obligations*	
09 12 [illegible]-06 11 78	FY 77 $33,792	TOTAL $33,792
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Gumas, G P	LARC Dixon, C W	21-Mathematics

NSG 2122 **Pennsylvania State University** **3200**
Subfornical organ and salt water balance

Period	*Obligations*	
01 01 76-12 31 77	FY 77 $25,238	TOTAL $44,038
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Severs, W B	ARC Keil, L C ARC Danelius, L V	53-Other Medical

NSG 2241 **Pennsylvania State University** **3201**
High polymers based on posphazene and other inorganic systems

Period	*Obligations*	
06 15 77-06 14 78	FY 77 $20,000	TOTAL $20,000
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Allcock, H R	ARC Fewell, T L	12-Chemistry

NSG 3012 **Pennsylvania State University** **3202**
Compressor or fan rotor wake characteristics

Period	*Obligations*	
06 28 74-10 27 77	FY 77	TOTAL $168,382
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Lakshminarayana, B	LERC Heidmann, M F	41-Aero Engr

NSG 3016 **Pennsylvania State University** **3203**
Microstructural parameters and the impact resistance of ceramic turbine materials

Period	*Obligations*	
07 01 74-07 31 78	FY 77 $35,000	TOTAL $140,000
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Bradt, R C	LERC Sanders, W A	47-Materials Engr

NSG 3031 **Pennsylvania State University** **3204**
The unsteady response of an axial flow fan to inlet distortions

Period	*Obligations*	
09 01 74-08 31 78	FY 77	TOTAL $56,841
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Henderson, R E	LERC Gelder, T F	41-Aero Engr

NSG 3032 **Pennsylvania State University** **3205**
Blade end wall flows in compressors

Period	*Obligations*	
09 01 74-08 31 78	FY 77	TOTAL $80,801
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Lakshminarayana, B	LERC Sockol, P M	41-Aero Engr

NSG 3097 **Pennsylvania State University** **3206**
Surface charge kinetics near metal dielectric interfaces exposed to kilovolt electron flux

Period	*Obligations*	
03 01 76-08 30 77	FY 77 $8,840	TOTAL $30,228
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Robinson, J W	LERC Berkopec, F D LERC Stevens, N F	49-Engr NEC

NSG 5185 **Pennsylvania State University** **3207**
Research of the nature and subsurface character of lineament in Pennsylvania

Period	*Obligations*	
07 01 [illegible]-06 30 78	FY 77 $32,638	TOTAL $32,638
Principal Investigator	*NASA Technical Officer*	*CASE Category*
Alexander, S S Gold, D P	GSFC Allenby, R J GSFC Thomas, H G	32-Geological Sci

NSG 5205 — **Pennsylvania State University** — **3208**
Utilization of satellite data in mesoscale models
Period: 09/01/77-11/30/78
Obligations: FY77 $46,500 — TOTAL $46,500
Prin Invest: Anthes, R A.
NASA Tech Officer: GSFC/Adler, R F
CASE Category: 31-Atmos Sci

NSG 5212 — **Pennsylvania State University** — **3209**
Study of high latitude thermospheric densities and flow patterns
Period: 10/01/77-09/30/78
Obligations: FY77 $29,012 — TOTAL $29,012
Prin Invest: Nisbet, J S.
NASA Tech Officer: GSFC/Spencer, N. W.
CASE Category: 13-Physics

NSG 6004 — **Pennsylvania State University** — **3210**
Studies of mesospheric ionization
Period: 10/01/75-09/30/77
Obligations: FY77 $20,000 — TOTAL $60,000
Prin Invest: Hale, L. C.
NASA Tech Officer: WFC/Ballance, C W , Jr.
WFC/Gray, J W
CASE Category: 19-Phys Sci, NEC

NSG 7078 — **Pennsylvania State University** — **3211**
Technical problems related to orbital capture of passive objects
Period: 07/01/74-02/28/77
Obligations: FY77 — TOTAL $70,663
Prin Invest: Kaplan, M
NASA Tech Officer: HQ-MT/Cramblitt, D
CASE Category: 42-Astro Engr

NSG 7120 — **Pennsylvania State University** — **3212**
Physicochemical basics for evaluating lunar petrogenesi.
Period: 02/01/75-01/31/78
Obligations: FY77 $18,034 — TOTAL $67,894
Prin Invest: Muan, A
NASA Tech Officer: HQ-SL/Goldstein, B F
HQ-SL/Quaide, W L
CASE Category: 32-Geological Sci

NSG 7193 — **Pennsylvania State University** — **3213**
Temporal and spatial stress distribution in the lunar interior and related phenomena
Period: 03/01/76-02/28/78
Obligations: FY77 $39,766 — TOTAL $75,182
Prin Invest: Alexander, S S
Samms, C
NASA Tech Officer: HQ-SL/Goldstein, B F
HQ-SL/Quaide, W L
CASE Category: 32-Geological Sci

NSG 7350 — **Pennsylvania State University** — **3214**
Wind tunnel test and laboratory evaluation of photo ionization probe
Period: 05/01/77-04/30/78
Obligations: FY77 $25,000 — TOTAL $25,000
Prin Invest: Hale, L C
York, J M.
NASA Tech Officer: HQ-SU/Seals, R. K., Jr
HQ-SU/Tilford, S G
CASE Category: 31-Atmos Sci

NAS 9-14979 — **Temple University** — **3215**
Ultraviolet-radiation induced skin cancer in experimental animals
Period: 04/26/76-07/31/78
Obligations: FY77 $70,000 — TOTAL $153,493
Prin Invest: Urback, F
NASA Tech Officer: JSC/Nachtwey, D S
CASE Category: 51-Biology

NAS 9-15207 — **Temple University** — **3216**
Development of Robertson-Berger sunburning ultraviolet meter computer-compatible readout modification
Period: 01/03/77-09/01/77
Obligations: FY77 $10,040 — TOTAL $10,040
Prin Invest: Urbach, F.
NASA Tech Officer: JSC/Nachtwey, D S.
CASE Category: 53-Other Medical

NAS 5-23479 — **University of Pennsylvania** — **3217**
Study of large adaptive arrays for space terminology applications
Period: 04/27/76-05/27/77
Obligations: FY77 — TOTAL $70,000
Prin Invest: Berkowitz, R. S
Steinberg, B. D.
NASA Tech Officer: GSFC/Durram, S H.
CASE Category: 45-Elec Engr

NAS 8-31702 — **University of Pennsylvania** — **3218**
Space processing applications shuttle payloads requirement specification study
Period: 09/26/75-04/02/76
Obligations: FY77 — TOTAL $5,000
Prin Invest: Zemel, J N
NASA Tech Officer: MSFC/Taylor, K R
MSFC/Poe, J W.
CASE Category: 19-Phys Sci, NEC

NGR 39-010-149 — **University of Pennsylvania** — **3219**
Plant morphogenesis under conditions of hypo and hypergravia
Period: 09/01/73-10/31/77
Obligations: FY77 $90,675 — TOTAL $312,107
Prin Invest: Brown, A H
Dahl, A O
NASA Tech Officer: HQ-SB/Halstead, T W
HQ-SB/Geib, D S
CASE Category: 51-Biology

NSG 7119 — **University of Pennsylvania** — **3220**
Microprobe and oxygen fugacity study of armalcolite
Period: 11/01/74-02/28/76
Obligations: FY77 — TOTAL $43,488
Prin Invest: Friel, J J
NASA Tech Officer: HQ-SL/Kosofsky, L J
HQ-SL/Roberson, F I
CASE Category: 32-Geological Sci

NSG 9011 — **University of Pennsylvania** — **3221**
Regulation of the internal oxygen and acid-base environment
Period: 08/01/74-02/31/77
Obligations: FY77 — TOTAL $100,000
Prin Invest: Lambertson, C J
NASA Tech Officer: JSC/Horrigan, D J
CASE Category: 51-Biology

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NAS 5-22892 **University of Pittsburgh** **3222**
Laser-plasma-laser system study

Period	Obligations	
02/26/76-02/26/79	FY77	TOTAL $32,878
Prin Invest	*NASA Tech Officer*	*CASE Category*
Falk, J	GSFC/Kostiuk, T.	43-Chem Engr

NASW 2838 **University of Pittsburgh** **3223**
Operation of an industrial applications center

Period	Obligations	
11/14/75-12/31/76	FY77	TOTAL $335,186
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Bivins, R. G	99-Multi-Discip

NASW 3042 **University of Pittsburgh** **3224**
Operation of an industrial applications center

Period	Obligations	
06/29/77-03/31/78	FY77 $324,750	TOTAL $324,750
Prin Invest	*NASA Tech Officer*	*CASE Category*
Unavailable	HQ-KT/Bivins, R. G	99-Multi-Discip

NGL 39-011-013 **University of Pittsburgh** **3225**
Investigation of airglow excitation mechanisms using atomic beam techniques

Period	Obligations	
04/26/65-01/31/80	FY77 $45,000	TOTAL $671,734
Prin Invest	*NASA Tech Officer*	*CASE Category*
Erie, W. L	HQ-SL/Fellows, R. F HQ-SL/Brunk, W. F	31-Atmos Sci

NGL 39-011-030 **University of Pittsburgh** **3226**
Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow

Period	Obligations	
05/07/65-04/30/79	FY77	TOTAL $858,352
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zipf, E. C	HQ-SL/Fellows, R. F HQ-SL/Brunk, W. F	31-Atmos Sci

NGL 39-011-035 **University of Pittsburgh** **3227**
New formulas for collision amplitudes and related quantities

Period	Obligations	
02/15/69-09/30/76	FY77	TOTAL $87,712
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gerjuoy, E	GSFC/Temkin, A	43-Physics

NGL 39-011-085 **University of Pittsburgh** **3228**
Studies relating to surfaces of moon & planets

Period	Obligations	
03/11/69-03/31/78	FY77 $46,221	TOTAL $339,299
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cassidy, W. A Hapke, B. W	HQ-SL/Goldstein, B. E HQ-SL/Quaide, W. L	32-Geological Sci

NGR 39-011-137 **University of Pittsburgh** **3229**
Dissociative recombination coefficients for planetary ionospheric ions

Period	Obligations	
07/28/71-05/31/78	FY77 $30,249	TOTAL $174,512
Prin Invest	*NASA Tech Officer*	*CASE Category*
Biondi, M. A.	HQ-SL/Fellows, R. F HQ-SL/Brunk, W. F	31-Atmos Sci

NGR 39-011-161 **University of Pittsburgh** **3230**
Laboratory studies of kinetics of tropospheric and stratospheric aircraft pollutant reactions using atomic and molecular resonance fluorescence detection

Period	Obligations	
06/03/73-02/28/78	FY77 $48,000	TOTAL $208,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kaufman, F	HQ-SU/Tilford, S. G LERC/Baker, C. E	12-Chemistry

NSG 2116 **University of Pittsburgh** **3231**
Feasibility of an instrument for the detection of the perturbative effects of planetary systems

Period	Obligations	
01/01/76-03/31/78	FY77	TOTAL $19,269
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gatewood, G. D	ARC/Billingham, J	11-Astronomy

NSG 2117 **University of Pittsburgh** **3232**
Survey nearby stars for the perturbative effects of extrasolar planetary systems

Period	Obligations	
01/01/76-01/31/78	FY77 $18,000	TOTAL $45,644
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gatewood, G. D Russell, J. L	ARC/Billingham, J ARC/Wolfe, H. H	11-Astronomy

NSG 2197 **University of Pittsburgh** **3233**
Spontaneous and evoked activity of the statoreceptors of the bullfrog as a result of weightlessness

Period	Obligations	
12/15/76-10/15/77	FY77 $329,572	TOTAL $329,572
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gualtierotti, T Bruechi, F	ARC/Mah, R. W	53-Other Medical

NSG 3002 **University of Pittsburgh** **3234**
Dissolved chloride and ammonium ions miniature electrodes for in situ water quality

Period	Obligations	
02/15/74-05/31/78	FY77 $14,250	TOTAL $99,174
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liu, C. C	LERC/Fordyce, J. S LERC/Leibecki, H. F	12-Chemistry

NSG 3163 **University of Pittsburgh** **3235**
Determination of efficiencies, loss mechanisms and performance degradation factors in chopper controlled dc vehicle motors

Period	Obligations	
09/01/77-04/30/78	FY77: $40,577	TOTAL: $40,577
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hamilton, H. B	LERC/McBrien, E. F. LERC/Gourash, F.	45-Elec Engr

NSG 3168 **University of Pittsburgh** **3236**
Studies of magnetostriction and spin polarized band structures of rare earth intermetallics

Period	Obligations	
09/26/77-09/26/78	FY77: $52,804	TOTAL: $52,804
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wallace, W. E. Sankar, S. G	LERC/Flood, D. J.	13-Physics

NSG 6011 **University of Pittsburgh** **3237**
Studies of the physics and chemistry of the terrestrial atmosphere

Period	Obligations	
10/01/75-09/30/77	FY77: $148,149	TOTAL: $296,135
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zipf, E. C., Jr	WFC/Ballance, C. W., Jr WFC/Gray, J. W.	19-Phys Sci, NEC

NSG 7147 **University of Pittsburgh** **3238**
Photometric analyses of Mariner 10 images of Venus and Mercury

Period	Obligations	
06/23/75-08/31/77	FY77: $32,972	TOTAL: $65,012
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hapke, B. W	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R	11-Astronomy

NSG 7203 **University of Pittsburgh** **3239**
Measurement of reflectivities of rock-forming minerals and glasses in the vacuum ultraviolet

Period	Obligations	
03/01/76-02/28/77	FY77	TOTAL: $56,979
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hapke, B. W Cohen, A. J Rtlow, P. A	HQ-SL, Williams, R. J. HQ-SL/Flinn, E. A	32-Geological Sci

NSG 9056 **University of Pittsburgh** **3240**
Measurement of reflectivities of rocks, minerals, glasses in the vacuum ultraviolet

Period	Obligations	
03/01/77-02/28/78	FY77: $55,497	TOTAL: $55,497
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hapke, B. W	JSC/Harris, J. W	13-Physics

RHODE ISLAND

NAS 1-9680 **Brown University** **3241**
Participation in the science planning for the Viking 1975 missions in the area of imaging

Period	Obligations	
03/25/70-09/30/78	FY77: $183,000	TOTAL: $714,682
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mutch, T. A.	LARC/Williams, T. S., Jr. LARC/Glenny, W. R	99-Multi-Discip

NGR 40-002-088 **Brown University** **3242**
Analysis of Martian geologic features of earth analogs

Period	Obligations	
10/20/69-11/31/77	FY77: $98,480	TOTAL: $327,237
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mutch, T. A	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R	32-Geological Sc.

NGR 40-002-093 **Brown University** **3243**
Investigation of methods for improvement of efficiency of photovoltaic cells

Period	Obligations	
02/12/70-12/31/76	FY77:	TOTAL: $132,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Loferski, J. J. Roessler, B	LARC/Walker, G. H. LARC/Conway, E. J	13-Physics

NGR 40-002-116 **Brown University** **3244**
Lunar basins processes and structure

Period	Obligations	
02/20/73-01/31/80	FY77: $81,217	TOTAL: $402,557
Prin Invest	*NASA Tech Officer*	*CASE Category*
Head, J. W Mutch, T. A	HQ-SL/Goldstein, B. E HQ-SL/Quaide, W. L	32-Geological Sci

NGR 40-002-123 **Brown University** **3245**
Lunar sample analysis

Period	Obligations	
05/01/73-01/31/78	FY77: $40,000	TOTAL: $147,923
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rutherford, M. J	JSC/Harris, J. W	32-Geological Sci

NSG 1076 **Brown University** **3246**
Large-scale wavelike eddies and their near and far jet noise field

Period	Obligations	
07/01/74-07/31/77	FY77: $25,000	TOTAL: $76,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Liu, J. T	LARC, Padula, S. L	39-Env Sci, NEC

RHODE ISLAND (Continued)

NSG 1222 **Brown University** **3247**
Methods of fabrication of large photodiode/amplifier arrays
Period *Obligations*
08/01/75-04/30/77 FY77 TOTAL $6,192
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Patterson, W. R., III LARC/Kelly, W. L., IV 45-Elec. Engr

NSG 3118 **Brown University** **3248**
Effect of processing parameters on reaction bonding silicon nitride
Period *Obligations*
08/01/76-10/01/78 FY77 $35,000 TOTAL $98,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Richman, M. H. LERC/Herbell, T. P. 47-Materials Engr

NSG 1008 **University of Rhode Island** **3249**
Development of three dimensional numerical pollutant transport modeling techniques for continental shelf applications
Period *Obligations*
03/01/74-11/01/77 FY77 $34,155 TOTAL $72,874
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spaulding, M. L. LARC/Pritchard, F. B. 49-Engr, NEC

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SOUTH CAROLINA

NAS 9-13669 **Clemson University - Clemson** **3250**
High temperature hyperfiltration water reclamation unit
Period *Obligations*
08/14/73-02/15/78 FY77 TOTAL $122,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gaddis, J. L. JSC/Reveley, W. F. 46-Mech. Engr
Brandon, C. A.

NSG 1297 **Clemson University - Clemson** **3251**
Crack growth in bonded isotropic and orthotropic elastic half-planes
Period *Obligations*
04/01/76-10/15/77 FY77 TOTAL $32,147
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goree, J. G. LARC/Poe, C. C., Jr. 46-Mech. Engr

NSG 1411 **Clemson University - Clemson** **3252**
Optimization of fiber reinforced structures to satisfy aeroelastic requirements
Period *Obligations*
07/01/77-06/30/78 FY77 $29,355 TOTAL $29,355
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rudisill, C. S. LARC/Doggett, R. V., Jr. 41-Aero. Engr
Bauld, N. R., Jr.

NSG 8044 **South Carolina State College** **3253**
Direct current transformers with magnetoresistive secondaries
Period *Obligations*
09/13/76-12/12/77 FY77 TOTAL $24,924
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Payne, J. F. MSFC/Urban, E. W. 13-Physics
MSFC/Kent, M. L.

NAS 8-28660 **University of South Carolina** **3254**
Study of microwave down-converters operating in Ku band
Period *Obligations*
04/19/72-05/31/78 FY77 $27,000 TOTAL $104,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fellers, R. G. MSFC/Lowrey, D. O. 45-Elec. Engr
MSFC/Stephens, J. K.

NGL 41-002-003 **University of South Carolina** **3255**
Infrared spectra of molecules & materials of astrophysical interest
Period *Obligations*
08/10/65-05/31/79 FY77 TOTAL $280,498
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Durig, J. R. HQ-SL/Fellows, R. F. 31-Atmos. Sci.
HQ-SL/Brunk, W. F.

NSG 1334 **University of South Carolina** **3256**
Comparative spectral radiometry of primary producers in a salt marsh estuary
Period *Obligations*
08/09/76-01/08/78 FY77 $21,604 TOTAL $21,604
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zingmark, R. G. LARC/Katzberg, S. J. 39-Env. Sci., NEC
LARC/Jobson, D. J.

NSG 7076 **University of South Carolina** **3257**
Paleohydrology of Mars
Period *Obligations*
07/01/74-09/30/77 FY77 $30,000 TOTAL $74,599
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nummedal, D. HQ-SL/Dwornik, S. E. 32-Geological Sci.
HQ-SL/Wahmann, R.

NSG 7096 **University of South Carolina** **258**
A model for the formation of protocells from glycine-rich proteinoids
Period *Obligations*
10/08/74-11/30/77 FY77 $34,362 TOTAL $82,498
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rohlfing, D. L. HQ-SB/Greb, D. S. 51-Biology

SOUTH DAKOTA

NAS 5-23470 **South Dakota School of Mines & Tech** **3259**
An RF hydrogen discharge dissociator

Period	*Obligations*	
03/23/76-06/23/77	FY77:	TOTAL: $5,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gruber, C. L.	GSFC/Reinhardt, V. S.	45-Elec Engr

NAS 5-20982 **South Dakota State University** **3260**
ERTS data follow-on investigation

Period	*Obligations*	
03/10/75-07/31/77	FY77:	TOTAL: $155,034
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schmer, F.	GSFC/Gordon, F., Jr.	32-Geological Sci

NAS 5-24206 **South Dakota State University** **3261**
Applications of heat capacity mapping mission satellite data to the study of urban heating patterns

Period	*Obligations*	
06/22/77-06/21/79	FY77: $77,270	TOTAL: $77,270
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, D.	GSFC/Gordon, F., Jr.	99-Multi-Discip

NAS 9-15345 **South Dakota State University** **3262**
Preparation of agrophysical maps

Period	*Obligations*	
05/17/77-12/31/78	FY77: $17,000	TOTAL: $17,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Westin, F. C.	JSC/Downs, J.	32-Geological Sci

NGL 42-003-007 **South Dakota State University** **3263**
Remote sensing of soils, land forms, and land use in the northern Great Plains in preparation for ERTS applications

Period	*Obligations*	
07/27/70-06/30/80	FY77: $150,000	TOTAL: $1,200,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Myers, V. I.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

TENNESSEE

NGR 43-021-002 **Fisk University** **3264**
Optical effect of contamination of infrared windows by materials in outer space

Period	*Obligations*	
11/01/73-02/01/78	FY77: $33,973	TOTAL: $107,187
Prin Invest	*NASA Tech Officer*	*CASE Category*
Silberman, E.	MSFC/Kroes, R. L.	13-Physics
Spreiter, J.	MSFC/Kent, M. L.	

NSG 8035 **Fisk University** **3265**
Asymptotic properties of scattering amplitudes

Period	*Obligations*	
06/02/76-06/01/78	FY77: $28,700	TOTAL: $53,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mickens, R. E.	MSFC/Parnell, T. A. MSFC/Kent, M. L.	12-Chemistry

NAS 5-23801 **Meharry Medical College** **3266**
Investigation of medical information management system application in a complex health care facility

Period	*Obligations*	
12/07/76-01/31/78	FY77: $55,564	TOTAL: $55,564
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, R. S. Braun, G.	GSFC/Alterescu, S. GSFC/Friedman, D. S.	52-Clinical Med

NAS 8-31189 **Memphis State University** **3267**
Optimization of absorption air conditioning systems for solar energy applications

Period	*Obligations*	
09/01/74-10/31/76	FY77	TOTAL: $41,570
Prin Invest	*NASA Tech Officer*	*CASE Category*
Perry, E.	MSFC/Patterson, W. C. MSFC/Clark, D. C.	46-Mech Engr

NAS 9-13878 **Memphis State University** **3268**
Digital voice processor

Period	*Obligations*	
06/01/74-03/31/78	FY77	TOTAL: $64,700
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morris, C. F.	JSC/Shack, P. L.	45-Elec Engr

NAS 9-15441 **Tennessee State University** **3269**
An analysis of methods and techniques used by government agencies in managing indirect costs at major aerospace firms

Period	*Obligations*	
10/01/77-09/30/78	FY77: $32,568	TOTAL: $32,568
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sampson, C.	JSC/Easley, R. L.	99-Multi-Discip

NGL 43-014-750 **Tennessee State University** **3270**
Training of undergraduate students in sciences and engineering

Period	*Obligations*	
06/01/75-05/31/78	FY77: $14,000	TOTAL: $42,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Malkani, M. J.	HQ-P: Pohly, J. G. HQ-U: Jenkins, H. G.	49-Engr, NEC

NSG 8012 **Tennessee State University** **3271**
Applications of acoustic emission to space flight hardware

Period	*Obligations*	
06/03/74-07/01/77	FY77	TOTAL: $114,457
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hougton, R. Packman, P. F.	MSFC: Humphries, W. R. MSFC/Kent, M. L.	46-Mech Engr

NSG 8032 **Tennessee State University** **3272**
An investigation of the motion of small particles as related to the formulation of zero gravity experiments

Period	Obligations	
01/01/76-12/31/77	FY77	TOTAL $45,894
Prin Invest	NASA Tech Officer	CASE Category
Burns, R G	MSFC/Kent, M. I	46-Mech Engr

NAS 8-31252 **Tennessee Technological University** **3273**
Data buoy hardware feasibility study

Period	Obligations	
11/27/74-09/26/75	FY77	TOTAL $6,375
Prin Invest	NASA Tech Officer	CASE Category
Childress, R Q.	MSFC/Kadrmas, K. A MSFC/Morton, R R	45-Elec Engr

NAS 8-31564 **Tennessee Technological University** **3274**
Study of utilization of solar energy for residential heating and cooling application

Period	Obligations	
07/01/75-09/01/77	FY77 $13,000	TOTAL $32,890
Prin Invest	NASA Tech Officer	CASE Category
Griggs, E I	MSFC/Humphries, W R MSFC/Hall C	31-Atmos Sci

NCA 8-102 **Tennessee Technological University** **3275**
Study of the heat transfer characteristics of a PCM thermal capacitor

Period	Obligations	
11/08/74-10/07/75	FY77	TOTAL $3,000
Prin Invest	NASA Tech Officer	CASE Category
Griggs, E I	MSFC/Humphries, W R	45-Elec Engr

NGR 43-003-015 **Tennessee Technological University** **3276**
Investigation of synchronization of Reynolds number dependent processes

Period	Obligations	
09/01/77-01/01/78	FY77 $22,000	TOTAL $132,750
Prin Invest	NASA Tech Officer	CASE Category
Ventriss, B	LaRC Personnel	46-Mech Engr

NAS 5-20672 **University of Tennessee - Knoxville** **3277**
Molecular absorption parameters (HO2)

Period	Obligations	
07/29/74-08/31/77	FY77 $410	TOTAL $26,420
Prin Invest	NASA Tech Officer	CASE Category
Fox, K	GSFC/Kunde, V G GSFC/Hanel, R A	31-Atmos Sci

NAS 5-23611 **University of Tennessee - Knoxville** **3278**
Fabricate and test prototype preamplifier and shaping amplifier for X-ray detectors photo tube

Period	Obligations	
07/01/76-08/31/77	FY77 $7,790	TOTAL $28,166
Prin Invest	NASA Tech Officer	CASE Category
Pierce, J F	GSFC Cuero, C A	45-Elec Engr

NAS 5-23898 **University of Tennessee - Knoxville** **3279**
Energy conservation task to improve conservation in Baltimore City

Period	Obligations	
03/16/77-10/15/77	FY77 $15,711	TOTAL $15,711
Prin Invest	NASA Tech Officer	CASE Category
Snyder, W T.	GSFC/Golden, J S.	39-Env Sci, NEC

NAS 5-24250 **University of Tennessee - Knoxville** **3280**
A study of modulation and data-transfer techniques applied to satellite data collection

Period	Obligations	
08/02/77-08/02/78	FY77 $57,335	TOTAL $57,335
Prin Invest	NASA Tech Officer	CASE Category
Rochelle, R W Smith, S	GSFC/Allen, W	45-Elec Engr

NAS 8-27296 **University of Tennessee - Knoxville** **3281**
Vibration effects on strapdown navigation accuracy

Period	Obligations	
04/16/71-08/31/76	FY77	TOTAL $248,423
Prin Invest	NASA Tech Officer	CASE Category
Kennedy, E J Blalock, T V	MSFC/Hertsgaard, H B MSFC/Gaines, B J	42-Astro Engr

NAS 8-29271 **University of Tennessee - Knoxville** **3282**
Application of image enhancement techniques to remote manipulator operations

Period	Obligations	
01/08/73-11/14/78	FY77 $77,562	TOTAL $202,016
Prin Invest	NASA Tech Officer	CASE Category
Gonzalez, R C	MSFC/Huggins, C MSFC/Borelli, M T	45-Elec Engr

NAS 8-29586 **University of Tennessee - Knoxville** **3283**
Study of wind profiles over nonuniform surface relative to ground design of aircraft & space vehicles

Period	Obligations	
07/02/73-09/12/78	FY77 $79,622	TOTAL $421,446
Prin Invest	NASA Tech Officer	CASE Category
Frost, W	MSFC Camp, D W MSFC Fichtl, G H	46-Mech Engr

NAS 8-31143 **University of Tennessee - Knoxville** **3284**
Use of ERTS data to update and map the wetlands of western Tennessee

Period	Obligations	
10/21/74-10/31/77	FY77	TOTAL $30,000
Prin Invest	NASA Tech Officer	CASE Category
Rehder, J B	MSFC Tescue, W I	39-Env Sci, NEC

NAS 8-31718 **University of Tennessee - Knoxville** **3285**
Thunderstorm modeling and satellite ground truth cloud studies

Period	Obligations	
11/14/75-03/06/78	FY77 $25,000	TOTAL $68,80
Prin Invest	NASA Tech Officer	CASE Category
Frost, W Connell, J R	MSFC Hill, K MSFC Turner, R E	31-Atmos Sci

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NAS 8-31980 **University of Tennessee - Knoxville** **3286**
Tennessee remote sensing applications research

Period *Obligations*
04/13/76-04/12/77 FY77: TOTAL: $15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Shahrokhi, F. MSFC/Paludan, C. T. 39-Env Sci, NEC
MSFC/Daniels, J. L., Jr

NAS 8-32031 **University of Tennessee - Knoxville** **3287**
Field study of advection fog

Period *Obligations*
09/01/76-12/31/77 FY77: TOTAL: $29,985
Prin Invest *NASA Tech Officer* *CASE Category*
Connell, J. R MSFC/Vaughan, O. H 31-Atmos Sci
MSFC/Anderson, B. J.

NAS 8-32034 **University of Tennessee - Knoxville** **3288**
Applying NASA remote sensing data to geologically related regional planning problems in Tennessee

Period *Obligations*
09/21/76-12/31/77 FY77: $5,000 TOTAL: $15,000
Prin Invest *NASA Tech Officer* *CASE Category*
Shahrokhi, F. MSFC/Bensko, J. 32-Geological Sci

NAS 8-32118 **University of Tennessee - Knoxville** **3289**
Natural wind environment criteria for the design of wind machines

Period *Obligations*
06/28/76-12/13/77 FY77 TOTAL: $40,000
Prin Invest *NASA Tech Officer* *CASE Category*
Frost, W. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Alexander, M.

NAS 8-32484 **University of Tennessee - Knoxville** **3290**
Selected fluid analysis for space processing programs

Period *Obligations*
06/10/77-03/09/78 FY77: $14,000 TOTAL: $14,000
Prin Invest *NASA Tech Officer* *CASE Category*
Collins, E. MSFC/Schafer, C. F. 47-Materials Engr
Frost, W. MSFC/Fichtl, G. H.

NAS 8-32611 **University of Tennessee - Knoxville** **3291**
Ice chambers design and warm fog microphysics applicable to the understanding and interpretation of flight experiments under low gravity conditions

Period *Obligations*
07/29/77-09/28/78 FY77: $15,796 TOTAL: $15,796
Prin Invest *NASA Tech Officer* *CASE Category*
Keller, V. MSFC/Anderson, J. 39-Env Sci, NEC
Frost, W. MSFC/Vaughan, O. H

NAS 8-32635 **University of Tennessee - Knoxville** **3292**
Feasibility study of slant-range visibility by lidar technique

Period *Obligations*
09/09/77-03/08/78 FY77: $13,269 TOTAL: $13,269
Prin Invest *NASA Tech Officer* *CASE Category*
Kohl, R. H MSFC/Camp, D. W. 31-Atmos Sci
MSFC/Moore, W. W., Jr

NAS 9-15164 **University of Tennessee - Knoxville** **3293**
Influence of space flight on erythropoietin activity and inhibition

Period *Obligations*
10/21/76-05/01/78 FY77: $62,000 TOTAL: $62,000
Prin Invest *NASA Tech Officer* *CASE Category*
Chen, J. P. JSC/Kimzey, S. L. 52-Clinical Med

NGL 43-001-006 **University of Tennessee - Knoxville** **3294**
Spectroscopic studies of line shape of atmospheric gases & of absorption bands of inorganic solids

Period *Obligations*
01/07/64-09/30/79 FY77: $75,000 TOTAL: $1,318,628
Prin Invest *NASA Tech Officer* *CASE Category*
Gailar, N. M. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NGL 43-001-140 **University of Tennessee - Knoxville** **3295**
Experimental investigations of opaque minerals and cooling history of lunar rocks

Period *Obligations*
09/01/73-01/31/80 FY77: $77,076 TOTAL: $376,176
Prin Invest *NASA Tech Officer* *CASE Category*
Taylor, L. A. JSC/Harris, J. W. 11-Astronomy

NGR 43-001-134 **University of Tennessee - Knoxville** **3296**
Research on fan noise caused by fluctuating lift, inlet turbulence, and distortion

Period *Obligations*
06/27/73-08/31/78 FY77: TOTAL: $47,060
Prin Invest *NASA Tech Officer* *CASE Category*
Lumsdaine, E. LERC/Dittmar, J. H. 41-Aero Engr

NGR 43-001-135 **University of Tennessee - Knoxville** **3297**
Research in aeroacoustics

Period *Obligations*
06/08/73-02/28/77 FY77 TOTAL: $48,840
Prin Invest *NASA Tech Officer* *CASE Category*
Maus, J. R. LERC/Reshotko, M. 41-Aero Engr

NSG 108 **University of Tennessee - Knoxville** **3298**
Investigation of inlet noise suppression using high subsonic Mach numbers

Period *Obligations*
07/15/74-09/30/77 FY77: $[illegible] TOTAL: $74,032
Prin Invest *NASA Tech Officer* *CASE Category*
Lumsdaine, E. LARC/Silcox, R. J. 41-Aero Engr

NSG 1163 **University of Tennessee - Knoxville** **3299**
Comparison of the fracture toughness of a metal-matrix composites as determined by four different techniques

Period *Obligations*
05/01/75-09/30/77 FY77: $55,454 TOTAL: $102,703
Prin Invest *NASA Tech Officer* *CASE Category*
Wright, M. A. LARC/Newman, J. C., Jr
LARC/Poe, C. C., Jr. 47-Materials Engr

NSG 1171 **University of Tennessee - Knoxville** **3300**
Study of tandem blades for helicopter rotors

Period	Obligations	
06/01/75-08/31/77	FY77	TOTAL $70,465
Prin Invest	NASA Tech Officer	CASE Category
Lumsdaine, E	LARC/Hammond, C E	41-Aero Engr

NSG 1224 **University of Tennessee - Knoxville** **3301**
A study of unsteady transonic flow analysis

Period	Obligations	
08/07/75-11/06/77	FY77 $23,650	TOTAL $45,120
Prin Invest	NASA Tech Officer	CASE Category
Kimble, K R	LARC/Bland, S R	41-Aero Engr
Wu J M	LARC/Bennett, R M	

NSG 1366 **University of Tennessee - Knoxville** **3302**
Least squares methods for transonic flows about oscillating wings

Period	Obligations	
12/15/76-06/14/77	FY77 $8,165	TOTAL $8,165
Prin Invest	NASA Tech Officer	CASE Category
Gunzburger, M D	LARC/Bland, S R	41-Aero Engr
	LARC/Bennett, R M.	

NSG 1391 **University of Tennessee - Knoxville** **3303**
A high order accurate finite element algorithm for high Reynolds number flow prediction

Period	Obligations	
02/15/77-02/14/78	FY77 $20,148	TOTAL $20,148
Prin Invest	NASA Tech Officer	CASE Category
Baker, A J	LARC/Smith, R E	21-Mathematics
	LARC/Shoosmith, J N	

NSG 5002 **University of Tennessee - Knoxville** **3304**
Research in the architecture and data processing alternatives for the TSI computer

Period	Obligations	
05/01/74-08/31/76	FY77	TOTAL $111,781
Prin Invest	NASA Tech Officer	CASE Category
Bodenheimer, R E	GSFC/Schaefer, D H	22-Computer Sci
Gon[illegible]z, R C		

NSG 7049 **University of Tennessee - Knoxville** **3305**
Line identification and lifetime measurements in the XUV and soft X-ray regions

Period	Obligations	
05/01/74-09/30/78	FY77	TOTAL $37,251
Prin Invest	NASA Tech Officer	CASE Category
Sellin, I A	HQ-SG/Bohlin, J D	11-Astronomy

NAS 5-22495 **University of Tennessee - Memphis** **3306**
Programmable data collection platform study

Period	Obligations	
06/26/75-03/18/77	FY77 $9,040	TOTAL $108,739
Prin Invest	NASA Tech Officer	CASE Category
Rochelle, R W	GSFC/Allen, W K	31-Atmos Sci

NAS 9-14918 **University of Tennessee - Memphis** **3307**
Investigation of toxicity of the pyrolysis products of spacecraft materials

Period	Obligations	
02/01/76-01/31/78	FY77 $50,000	TOTAL $100,000
Prin Invest	NASA Tech Officer	CASE Category
Austian, J.	JSC/Kaplan, H L	12-Chemistry
Lawrence, W H.		

NSG 1340 **University of Tennessee - Nashville** **3308**
A design study of high temperature, advanced composite structures

Period	Obligations	
09/20/76-11/19/77	FY77 $40,944	TOTAL $40,944
Prin Invest	NASA Tech Officer	CASE Category
Blackburn, C L	LARC/Robinson, J. C	41-Aero Engr
	LARC/Cooper, P A	

NAS 8-30656 **Vanderbilt University** **3309**
Study of diffusion coefficients of glasses under zero-g

Period	Obligations	
06/01/74-11/30/76	FY77	TOTAL $64,647
Prin Invest	NASA Tech Officer	CASE Category
Kinser, D L	MSFC/Nichols, R L	13-Physics
	MSFC/King, H M	

NAS 8-31556 **Vanderbilt University** **3310**
Study of standard test specimen for rod peening aluminum alloys

Period	Obligations	
06/25/75-12/24/75	FY77	TOTAL $20,000
Prin Invest	NASA Tech Officer	CASE Cate
Wert, J J	MSFC/Brennecke, M	
Ranganathan, B N	MSFC/Hess, H A	[illegible]-Materials Engr

NAS 8-32437 **Vanderbilt University** **3311**
Contamination control study

Period	Obligations	
04/01/77-03/31/78	FY77 $20,000	TOTAL $20,000
Prin Invest	NASA Tech Officer	CASE Category
Kinser, D. L	MSFC/Caruso, S V	49-Engr, NEC

NAS 9-15092 **Vanderbilt University** **3312**
Plant enzyme investigation

Period	Obligations	
12/01/76-09/01/77	FY77	TOTAL $12,000
Prin Invest	NASA Tech Officer	CASE Category
Pratt, L H	JSC/Hoffman, R A	54-Biology

NSG 1232 **Vanderbilt University** **3313**
Nuclear pumped lasers

Period	Obligations	
08/05/72-08/04/77	FY77	TOTAL $60,674
Prin Invest	NASA Tech Officer	CASE Category
Lee, J. H	LARC/Hohl, F	13-Physics

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NSG 1235 **Vanderbilt University** **3314**
Production and diagnostics of dense nuclear plasmas

Period	Obligations	
09/01/75-08/31/78	FY77 $60,213	TOTAL $178,001
Prin. Invest.	NASA Tech. Officer	CASE Category
Lee, J. H.	LARC/Hohl, F.	13-Physics

NSG 1408 **Vanderbilt University** **3315**
Spectroscopic studies of selected radiative transitions in alkali-rare gas excimers and alkali dimers

Period	Obligations	
06/01/77-05/31/78	FY77 $10,000	TOTAL $10,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Tellinghuisen, J. B.	LARC/Exton, R. J.	13-Physics

NSG 7343 **Vanderbilt University** **3316**
Ultraviolet studies of galaxies

Period	Obligations	
05/01/77-04/30/78	FY77 $20,500	TOTAL $20,500
Prin. Invest.	NASA Tech. Officer	CASE Category
Weedman, D. W.	HQ-SA/Roman, N. G. HQ-SA/Rosenthal, J. D.	11-Astronomy

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NAS 9-10537 **Baylor College of Medicine** **3317**
Study of human adrenal control mechanisms

Period	Obligations	
04/23/70-12/31/77	FY77	TOTAL $165,290
Prin. Invest.	NASA Tech. Officer	CASE Category
Campbell, B. O.	JSC/Leach, C. S.	52-Clinical Med

NAS 9-13540 **Baylor College of Medicine** **3318**
Critical analysis of amino acid excretion patterns

Period	Obligations	
06/28/73-11/30/77	FY77	TOTAL $79,600
Prin. Invest.	NASA Tech. Officer	CASE Category
DiTerrante, N.	JSC/Leach, C. S.	59-Life Sci, NEC

NAS 9-13737 **Baylor College of Medicine** **3319**
Analysis of body calcium

Period	Obligations	
02/01/74-08/01/78	FY77 $50,000	TOTAL $306,304
Prin. Invest.	NASA Tech. Officer	CASE Category
Johnson, P. C. Scheld, W.	JSC/Hoffman, R. A. JSC/Smith, M. C., Jr.	53-Other Medical

NAS 9-14322 **Baylor College of Medicine** **3320**
Cellular immune response study

Period	Obligations	
08/01/74-10/31/77	FY77 $80,000	TOTAL $299,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Criswell, B. S.	JSC/Kimzey, S. L.	52-Clinical Med

NAS 9-14407 **Baylor College of Medicine** **3321**
Evaluation of primary irritancy and allergenicity of materials proposed for crew apparel

Period	Obligations	
09/19/74-06/20/78	FY77	TOTAL $20,978
Prin. Invest.	NASA Tech. Officer	CASE Category
Duncan, W. C.	JSC/Kaplan, H. I.	52-Clinical Med

NAS 9-14546 **Baylor College of Medicine** **3322**
Ethological study of motion sickness by using subhuman primates

Period	Obligations	
05/01/75-04/30/78	FY77 $34,987	TOTAL $99,481
Prin. Invest.	NASA Tech. Officer	CASE Category
Igarashi, M.	JSC/Homick, J. L.	51-Biology

NAS 9-14661 **Baylor College of Medicine** **3323**
Evaluation of physiological responses and diagnostic criteria for the application of exercise stress testing within the biomedical space program

Period	Obligations	
06/01/75-09/30/77	FY77 $45,118	TOTAL $140,118
Prin. Invest.	NASA Tech. Officer	CASE Category
Cardus, D.	JSC/Rummel, J. A. JSC/Sawin, C. F.	53-Other Medical

NAS 9-14662 **Baylor College of Medicine** **3324**
Influence of the external parameters of space flight on the regulation of blood volume

Period	Obligations	
06/01/75-11/30/77	FY77 $40,000	TOTAL $99,975
Prin. Invest.	NASA Tech. Officer	CASE Category
Johnson, P. C.	JSC/Kimzey, S. L.	52-Clinical Med

NAS 9-14715 **Baylor College of Medicine** **3325**
Renal response to actual and simulated space flight

Period	Obligations	
06/16/75-01/31/78	FY77	TOTAL $70,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Suki, W. N.	JSC/Leach, C. S.	59-Life Sci, NEC

NAS 9-15046 **Baylor College of Medicine** **3326**
Effects of alterations in preload and afterload on ventricular function

Period	Obligations	
06/01/76-06/01/78	FY77	TOTAL $50,000
Prin. Invest.	NASA Tech. Officer	CASE Category
Alexander, J. K.	JSC/Hoffler, G. W.	53-Other Medical

NGR 44-095-001 **Hardin - Simmons University** **3327**
Study of psychophilic organisms isolated from manufacture and assembly areas of spacecraft to be used in the Viking missions

Period	Obligations	
08/21/72-12/31/77	FY77 $65,002	TOTAL $318,602
Prin. Invest.	NASA Tech. Officer	CASE Category
Foster, T. H.	HQ-SB/Young, R. S.	51-Biology

NGR 44-081-001 **Houston Baptist University** 3328
Research in stellar ultraviolet spectroscopy

Period	Obligations	
05/20/70-09/30/78	FY77:	TOTAL: $189,335
Prin Invest	*NASA Tech Officer*	*CASE Category*
Modisette, J L	JSC/Kondo, Y	11-Astronomy

NGR 44-081-005 **Houston Baptist University** 3329
Analysis of Copernicus 0A011 data on the MG II resonance doublet at 2802 and 2795a in early type stars

Period	Obligations	
01/21/74-01/21/78	FY77	TOTAL $7,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Modisette, J. L.	JSC/Kondo, Y	11-Astronomy

NSG 5188 **Houston Baptist University** 3330
A new spectroscopic orbit for Spica based on complete phase coverage within a single cycle

Period	Obligations	
08/01/77-07/31/78	FY77 $1,232	TOTAL $1,232
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morgan, T H.	GSFC/Kupperian, J E , Jr	11-Astronomy

NSG 9038 **Houston Baptist University** 3331
Obtaining high spatial resolution planetary imagery with potential shuttle era instrumentation

Period	Obligations	
01/01/76-12/31/78	FY77 $25,000	TOTAL $39,250
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morgan, T H.	JSC/Potter, A E.	11-Astronomy

NGR 44-087-002 **Pan American University** 3332
Diffuse reflectance spectra of frosts occurring on astronomical objects

Period	Obligations	
01/01/74-12/31/76	FY77	TOTAL $87,861
Prin Invest	*NASA Tech Officer*	*CASE Category*
Glaser, F M	JPL/Huntress, W T	32-Geological Sci

NSG 7298 **Pan American University** 3333
Laboratory studies of the diffuse reflectance spectra of frosts and minerals occurring on astronomical objects

Period	Obligations	
01/01/77-12/31/77	FY77 $38,350	TOTAL $38,350
Prin Invest	*NASA Tech Officer*	*CASE Category*
Glaser, F M.	HQ-P/Pohly, J. G JPL/Lebofsky, L A	31-Atmos Sci

NSG 9033 **Pan American University** 3334
Experimental tests and model calculations on wheat varieties grown in India/Pakistan and Texas

Period	Obligations	
08/28/75-09/30/78	FY77 $38,000	TOTAL $110,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lemaster, E W	JSC/Heydorn, R P	39-Env Sci, NEC

NSG 9053 **Pan American University** 3335
Investigations into affine transformation algorithms for signature extension

Period	Obligations	
02/18/77-12/31/77	FY77: $24,687	TOTAL: $24,687
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCabe, J. E.	JSC/Heydorn, R. P	39-Env Sci, NEC

NGT 44-033-750 **Prairie View A&M University** 3336
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/75-05/31/78	FY77 $7,000	TOTAL $35,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Greaux, A E.	HQ-P/Pohly, J. G HQ-U/Jenkins, H. G	49-Engr, NEC

NSG 9006 **Prairie View A&M University** 3337
Growth measurement of morphological and bidirectional scattering parameters of wheat

Period	Obligations	
06/01/74-12/31/77	FY77 $35,000	TOTAL $98,019
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brams, E A	JSC/Browne, D	39-Env Sci, NEC

NAS 2-9552 **Rice University** 3338
Biological and ecological effects of energy transmission by microwaves Effects of 2,450 microwave illumination on plant growth

Period	Obligations	
03/18/77-09/17/77	FY77 $22,000	TOTAL $22,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ward, C H	ARC/Johnson, R D ARC/Kennand, J	31-Atmos Sci

NAS 5-9317 **Rice University** 3339
Reduction and analysis of data from OGO C & D ion chamber experiment

Period	Obligations	
03/23/66-12/01/78	FY77:	TOTAL $201,552
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, H R , Jr	GSFC/Meese, K J	32-Geological Sci

NAS 5-23338 **Rice University** 3340
Theoretical predictions and data analysis

Period	Obligations	
02/04/74-12/31/77	FY77	TOTAL $4,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cloutier, P A Michel, F C	GSFC/Taylor, H A , Jr.	13-Physics

NAS 6-1667 **Rice University** 3341
Investigation into relationship between field aligned currents and auroral particle fluxes

Period	Obligations	
07/23/69-09/30/77	FY77 $181,250	TOTAL $1,931,059
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, H R , Jr Cloutier, P A	WFC/Ballance, C W , Jr WFC/Gray, J W	11-Astronomy

NAS 8-32030 **Rice University** **3342**
Thermodynamic property determination in low gravity
Period 05 23 76-01 31 77 *Obligations* FY 77 TOTAL $10,967
Prin Invest Margrave, J L *NASA Tech Officer* MSFC Berge, E H; MSFC Snyder, R *CASE Category* 13-Physics

NAS 9-11827 **Rice University** **3343**
Adsorption bed models used in simulation of atmospheric control systems
Period 05 10 71-09 30 78 *Obligations* FY 77 $10,000 TOTAL $95,704
Prin Invest Davis, S H *NASA Tech Officer* JSC Kissinger, L D *CASE Category* 43-Chem Engr

NAS 9-15212 **Rice University** **3344**
Ionosphere-microwave beam interaction study
Period 12 01 76-03 31 78 *Obligations* FY 77 $60,000 TOTAL $60,000
Prin Invest Gordon, W E *NASA Tech Officer* JSC Arndt, G D *CASE Category* 31-Atmos Sci

NAS 9-15274 **Rice University** **3345**
A fundamental study of liquid spray evaporation at a heated surface
Period 04 01 77-03 31 78 *Obligations* FY 77 $19,919 TOTAL $19,919
Prin Invest Wierum, F A *NASA Tech Officer* JSC Collier, J; JSC Ellis, W E *CASE Category* 46-Mech Engr

NGL 44-006-001 **Rice University** **3346**
Research on physics of solid materials including study of basic laws governing behavior of solids at high temperatures
Period 05 01 72-06 30 78 *Obligations* FY 77 TOTAL $4,550,000
Prin Invest Rorschach, H E *NASA Tech Officer* LERC Cad, R A *CASE Category* 13-Physics

NGL 44-006-012 **Rice University** **3347**
Laboratory development of solar wind heavy-ion mass spectrometer
Period 06 27 64-06 30 80 *Obligations* FY 77 $123,000 TOTAL $1,381,736
Prin Invest Michel, F C *NASA Tech Officer* HQ-ST Cauffman, D P; HQ-ST Schmerling, E R *CASE Category* 13-Physics

NGL 44-006-127 **Rice University** **3348**
Lunar fines, their origin, evolution, and interaction with solar wind and cosmic rays
Period 02 16 71-01 31 78 *Obligations* FY 77 $70,400 TOTAL $492,149
Prin Invest Heymann, D *NASA Tech Officer* JSC Harris, J W *CASE Category* 32-Geological Sci

NGR 44-006-127 **Rice University** **3349**
Analysis of data on the magnetotail and solar wind
Period 12 29 70-12 31 77 *Obligations* FY 77 $55,000 TOTAL $252,697
Prin Invest Dessler, A J *NASA Tech Officer* HQ-ST Taylor, W W; HQ-ST Schmerling, E R *CASE Category* 13-Physics

NGR 44-006-156 **Rice University** **3350**
Photoionization of atoms in metastable states
Period 06 21 72-06 30 77 *Obligations* FY 77 $10,000 TOTAL $178,049
Prin Invest Stebbings, R F *NASA Tech Officer* JSC Potter, A E *CASE Category* 13-Physics

NSG 7015 **Rice University** **3351**
Nuclear gamma-ray astronomy prospects for HEAO-B
Period 04 01 74-07 31 77 *Obligations* FY 77 TOTAL $84,621
Prin Invest Clayton, D D *NASA Tech Officer* HQ-SA Sofia, S *CASE Category* 11-Astronomy

NSG 7032 **Rice University** **3352**
Apollo data synthesis - Lunar atmosphere and ionosphere
Period 04 01 74-02 28 78 *Obligations* FY 77 $30,701 TOTAL $80,634
Prin Invest Michel, F C; Manka, R H *NASA Tech Officer* HQ-SL Goldstein, B E; HQ-SL Quaide, W L *CASE Category* 31-Atmos Sci

NSG 7043 **Rice University** **3353**
Research on planetary atmospheres
Period 03 01 74-02 29 80 *Obligations* FY 77 $50,915 TOTAL $211,190
Prin Invest Chamberlain, J W *NASA Tech Officer* HQ-SL Fellows, R E; HQ-SL Brunk, W E *CASE Category* 31-Atmos Sci

NSG 7157 **Rice University** **3354**
Analysis and synthesis of Apollo lunar surface experiments package suprathermal ion
Period 07 01 75-04 30 78 *Obligations* FY 77 $27,209 TOTAL $169,715
Prin Invest Freeman, J W, Jr *NASA Tech Officer* HQ-SL Goldstein, B E; HQ-SL Quaide, W L *CASE Category* 32-Geological Sci

NSG 7361 **Rice University** **3355**
Origin of the solar system - The relationship of isotopic and chemical anomalies in meteorites Earth, Moon and planets to astrophysical models of their origin
Period 08 01 77-07 31 78 *Obligations* FY 77 $23,093 TOTAL $23,093
Prin Invest Clayton, D D *NASA Tech Officer* HQ-SL Goldstein, B E; HQ-SL Quaide, W L *CASE Category* 32-Geological Sci

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NSG 7362 **Rice University** **3356**
Thermal history of the inner planets

Period	Obligations	
07/01/77-05/30/78	FY77 $21,284	TOTAL $21,284

Prin Invest	NASA Tech Officer	CASE Category
Debremaecker, J C	HQ-SL/Goldstein, B E.	
	HQ-SL/Quade, W L	32-Geological Sci

NSG 9039 **Saint Mary's University** **3357**
X-ray diffraction studies of shocked lunar analogs

Period	Obligations	
01/10/76-05/31/78	FY77 $17,900	TOTAL $37,700

Prin Invest	NASA Tech Officer	CASE Category
Hanss, R L.	JSC/Horz, F	32-Geological Sci

NSG 1206 **Southern Methodist University** **3358**
Fabrication and evaluation of gallium arsenide solar cells with solution-grown germanium doped p-region

Period	Obligations	
08/01/75-08/31/77	FY77	TOTAL $25,416

Prin Invest	NASA Tech Officer	CASE Category
Ashley, K L	LARC/Walker, G. H.	45-Elec Engr
	LARC/Conway, E J	

NSG 2006 **Southern Methodist University** **3359**
Monitoring of the Dallas/Fort Worth regional airport

Period	Obligations	
02/01/74-03/31/78	FY77 $21,357	TOTAL $71,023

Prin Invest	NASA Tech Officer	CASE Category
Starling, J	ARC/Tanner, T. A., Jr.	79-Soc Sci, NEC

NGT 44-073-750 **Texas A&I University** **3360**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/75-05/31/78	FY77 $3,500	TOTAL $17,500

Prin Invest	NASA Tech Officer	CASE Category
Franke, E A	HQ-P/Pohly, J. G	49-Engr, NEC
	HQ-U/Jenkins, H. G	

NSG 3112 **Texas A&I University** **3361**
Comparison of experimental data with mathematical models for combustion chamber mixing

Period	Obligations	
09/01/76-02/28/78	FY77	TOTAL $13,520

Prin Invest	NASA Tech Officer	CASE Category
OHara, J C	LERC/Priem, R. J.	41-Aero Engr

NAS 5-20796 **Texas A&M University** **3362**
ERTS follow-on investigation

Period	Obligations	
01/15/75-04/15/78	FY77 $40,000	TOTAL $151,375

Prin Invest	NASA Tech Officer	CASE Category
Rouse, J W, Jr	GSFC/Stonesifer, G R	
		59-Life Sci, NEC

NAS 5-22534 **Texas A&M University** **3363**
LANDSAT data analysis

Period	Obligations	
08/21/75-12/21/77	FY77	TOTAL $54,222

Prin Invest	NASA Tech Officer	CASE Category
Blanchard, B J	GSFC/Gordon, F J Jr	
		39-Env Sci, NEC

NAS 5-22966 **Texas A&M University** **3364**
Nimbus-G experiment team for coastal zone color scanner

Period	Obligations	
02/10/76-02/10/79	FY77 $63,000	TOTAL $88,000

Prin Invest	NASA Tech Officer	CASE Category
El-Sayed, S Z	GSFC/Hovis, W. A.	41-Aero Engr
	GSFC/Nelsen, F D	

NAS 5-23827 **Texas A&M University** **3365**
Automated document monitoring and control program for software development

Period	Obligations	
01/31/77-01/31/78	FY77 $124,929	TOTAL $124,929

Prin Invest	NASA Tech Officer	CASE Category
Simmons, D. B	GSFC/Damon, E P.	22-Computer Sci
Elliott, R W.		

NAS 8-26379 **Texas A&M University** **3366**
Development of techniques to control dislocations created during the fabrication of large scale integrated circuit alloys

Period	Obligations	
08/27/70-02/28/77	FY77	TOTAL $268,310

Prin Invest	NASA Tech Officer	CASE Category
Porter, W A	MSFC/Nowakowski, M E.	45-Elec Engr
	MSFC/Holiday, A M.	

NAS 8-31234 **Texas A&M University** **3367**
Steady wind turbulence environments

Period	Obligations	
04/07/75-01/31/77	FY77	TOTAL $10,729

Prin Invest	NASA Tech Officer	CASE Category
Brundidge, K C	MSFC/Fichtl, G H.	31-Atmos Sci

NAS 8-31773 **Texas A&M University** **3368**
The relationship between severe storms and their environment

Period	Obligations	
01/02/76-02/28/78	FY77 $62,988	TOTAL $144,983

Prin Invest	NASA Tech Officer	CASE Category
Scoggins, J R	MSFC/Turner, R E	31-Atmos Sci
	MSFC/Vaughn, W W	

NAS 8-32527 **Texas A&M University** **3369**
Bent crystal X-ray topography

Period	Obligations	
07/13/77-07/12/78	FY77 $39,954	TOTAL $39,954

Prin Invest	NASA Tech Officer	CASE Category
Parker, D E	MSFC/Nowakowski, M E	13-Physics

TEXAS (Continued)

NAS 9-12434 **Texas A&M University** **3370**
Compression of rehydratable vegetables & cereals

Period	Obligations	
01/19/72-01/31/78	FY77	TOTAL $140,000
Prin Invest	NASA Tech Officer	CASE Category
Burns, E F	JSC/Smith, M C, Jr	59-Life Sci, NEC

NAS 9-13894 **Texas A&M University** **3371**
Classification techniques evaluation and yield modeling for a large crop inventory project

Period	Obligations	
01/15/74-12/31/77	FY77 $90,000	TOTAL $372,555
Prin Invest	NASA Tech Officer	CASE Category
Hartley, H O	JSC/Broune, T D	22-Computer Sci

NAS 9-13904 **Texas A&M University** **3372**
Microwave soil moisture measurement and analysis

Period	Obligations	
02/11/74-04/30/78	FY77 $117,480	TOTAL $305,210
Prin Invest	NASA Tech Officer	CASE Category
Rouse, J W, Jr	JSC/Buras, N T	39-Env Sci, NEC

NAS 9-14470 **Texas A&M University** **3373**
Analysis of spectral data for wheat

Period	Obligations	
01/01/75-12/01/77	FY77 $47,800	TOTAL $204,194
Prin Invest	NASA Tech Officer	CASE Category
Harlan, J C	JSC/Barnett, T L	39-Env Sci, NEC

NAS 9-14478 **Texas A&M University** **3374**
Aeroelastic analytical studies of the space shuttle configurations

Period	Obligations	
09/30/74-10/31/77	FY77 $83,373	TOTAL $303,373
Prin Invest	NASA Tech Officer	CASE Category
Cavin, R K, III	JSC/Hillje, E R	41-Aero Engr
Howze, J W		

NAS 9-14556 **Texas A&M University** **3375**
Image 100 procedure manual development

Period	Obligations	
02/01/75-08/31/75	FY77	TOTAL $33,243
Prin Invest	NASA Tech Officer	CASE Category
Guseman, L F, Jr	JSC/Nolin, F D	22-Computer Sci

NAS 9-14689 **Texas A&M University** **3376**
Application of feature selection

Period	Obligations	
06/01/75-10/31/77	FY77 $38,000	TOTAL $146,200
Prin Invest	NASA Tech Officer	CASE Category
Guseman, L F, Jr	JSC/Browne, T D	22-Computer Sci

NAS 9-14817 **Texas A&M University** **3377**
Microwave signature acquisition system improvements

Period	Obligations	
10/30/75-01/15/78	FY77 $127,000	TOTAL $179,014
Prin Invest	NASA Tech Officer	CASE Category
Newton, R W	JSC Hatcher, N W	13-Physics
Jean, B R		

NAS 9-14828 **Texas A&M University** **3378**
Lunar sample irradiation services

Period	Obligations	
11/03/75-08/31/78	FY77 $20,000	TOTAL $30,000
Prin Invest	NASA Tech Officer	CASE Category
Randall, J D	JSC/Blanchard, D	39-Env Sci, NEC

NAS 9-14875 **Texas A&M University** **3379**
Joint soil moisture experiment scatterometer data processing

Period	Obligations	
01/22/76-09/30/77	FY77 $25,000	TOTAL $55,000
Prin Invest	NASA Tech Officer	CASE Category
Schell, J A	JSC/Buras, T L	32-Geological Sci

NAS 9-15173 **Texas A&M University** **3380**
Behavioral evaluation of fundulus heterochitus developed on ASTP/Kosmos flight

Period	Obligations	
11/23/76-11/30/77	FY77 $20,000	TOTAL $20,000
Prin Invest	NASA Tech Officer	CASE Category
Kleerekoper, H	JSC/Hoffman, R A	51-Biology

NAS 9-15311 **Texas A&M University** **3381**
Investigation of microprocessor systems to be used in the development of a 4.75 GHz scatterometer real-time processor

Period	Obligations	
05/11/77-09/10/77	FY77 $5,000	TOTAL $5,000
Prin Invest	NASA Tech Officer	CASE Category
Hulse, W C	JSC Farris, G W	45-Elec Engr

NGL 44-001-001 **Texas A&M University** **3382**
Inter/disciplinary space oriented research in physical, life and engineering sciences

Period	Obligations	
02/01/62-01/31/80	FY77 $150,000	TOTAL $1,840,564
Prin Invest	NASA Tech Officer	CASE Category
Rouse, J W, Jr	HQ-P/Vitale, J A	39-Env Sci, NEC
	HQ-ER/Lehmann, J	

NGR 44-001-117 **Texas A&M University** **3383**
Radiative transfer in realistic planetary atmospheres

Period	Obligations	
07/19/71-09/30/79	FY77 $49,000	TOTAL $264,420
Prin Invest	NASA Tech Officer	CASE Category
Plass, G N	HQ-SL/Fellows, R L	31-Atmos Sci
	HQ-SL Brunk, W E	

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NGR 44-001-152 **Texas A&M University** **3384**
Magnetic studies of meteorites
Period *Obligations*
06/20/73-08/31/76 FY77: TOTAL $54,889
Prin Invest *NASA Tech Officer* *CASE Category*
Rowe, M W HQ-SL/Williams, R J 32-Geological Sci

NSG 1174 **Texas A&M University** **3385**
Development of inverse transonic airfoil design methods including boundary layer and viscous interaction effects
Period *Obligations*
05/01/75-01/31/78 FY77 $14,981 TOTAL $29,865
Prin Invest *NASA Tech Officer* *CASE Category*
Carlson, L A. LARC/South, J C, Jr. 41-Aero Engr

NSG 1374 **Texas A&M University** **3386**
Low cost avionics for the global positioning system
Period *Obligations*
01/15/77-10/14/77 FY77 $17,937 TOTAL $17,937
Prin Invest *NASA Tech Officer* *CASE Category*
Painter, J H LARC/Hearn, C P 45-Elec Engr
Noe, P S
Rhyne, V T

NSG 1407 **Texas A&M University** **3387**
Investigation of the aerodynamics for preventing aircraft stall and the development of technology for stall proof general aviation aircraft
Period *Obligations*
04/01/77-10/31/77 FY77 $29,993 TOTAL $29,993
Prin Invest *NASA Tech Officer* *CASE Category*
Chevalier, H L. LARC/Chambers, J R 41-Aero Engr
LARC/Johnson, J L.

NSG 2123 **Texas A&M University** **3388**
The drag of two-dimensional bluff cylinders in transonic cross flow
Period *Obligations*
12/01/75-12/31/77 FY77 TOTAL $5,824
Prin Invest *NASA Tech Officer* *CASE Category*
MacHa, J. M. ARC/Malcolm, G N 41-Aero Engr

NSG 2226 **Texas A&M University** **3389**
Applicability of reliability and survivability program-version I to model reliability and survivability characteristics of aircraft weapon systems
Period *Obligations*
05/01/77-02/01/78 FY77 $6,000 TOTAL $6,000
Prin Invest *NASA Tech Officer* *CASE Category*
Foster, J W ARC/Wong, J T 41-Aero Engr
Phillips, D T. ARC/Andre, W L

NSG 5134 **Texas A&M University** **3390**
Measurement of soil moisture trends with airborne scatterometers
Period *Obligations*
10/11/76-12/10/77 FY77: $25,000 TOTAL $25,000
Prin Invest *NASA Tech Officer* *CASE Category*
Blanchard, B J GSFC/Chang, A T 32-Geological Sci

NSG 5156 **Texas A&M University** **3391**
Measurement of the hydrologic soil-cover complex with airborne scatterometers
Period *Obligations*
02/01/77-01/31/78 FY77 $48,985 TOTAL $48,985
Prin Invest *NASA Tech Officer* *CASE Category*
Blanchard, B J GSFC/Chang, A T 32-Geological Sci

NSG 5193 **Texas A&M University** **3392**
Temporal correlations of antecendent precipitation with Nimbus-5 electrically scanning microwave radiometer brightness temperatures
Period *Obligations*
08/01/77-07/31/78 FY77 $5,437 TOTAL $5,437
Prin Invest *NASA Tech Officer* *CASE Category*
McFarland, M J GSFC Schmugge, T J 31-Atmos Sci
Blanchard, B J

NSG 7037 **Texas A&M University** **3393**
The origin of the genetic code A physical chemical model of Codon assignment
Period *Obligations*
05/07/74-05/31/78 FY77 $44,000 TOTAL $171,975
Prin Invest *NASA Tech Officer* *CASE Category*
Fendler, J H HQ-SB Young, R S 12-Chemistry
Nagyvary, J

NSG 7189 **Texas A&M University** **3394**
A comparison of smooth, continuous velocity models and stepwise, layered velocity models for the lunar crust
Period *Obligations*
02/01/76-01/15/78 FY77 TOTAL $20,704
Prin Invest *NASA Tech Officer* *CASE Category*
Gangi, A F. HQ-SI Goldstein, B T
Self, S T 32-Geological Sci

NSG 7370 **Texas A&M University** **3395**
Spacecraft evidence for sulfur in the clouds of Venus
Period *Obligations*
06/01/77-05/31/78 FY77 $22,854 TOTAL $22,854
Prin Invest *NASA Tech Officer* *CASE Category*
Young, A T HQ-SI Dwornik, S T 32-Geological Sci
HQ-SI Wahmann, R

NAS 9-11162 **Texas Tech University** **3396**
Insulated ECG electrodes

Period	Obligations	
06/29/70-01/31/78	FY77	TOTAL $134,892
Prin Invest	NASA Tech Officer	CASE Category
Portnoy, W M	JSC/Day, J L.	48-Elec Engr

NSG 2137 **Texas Tech University** **3397**
Pharmacological prevention of bone loss

Period	Obligations	
05/01/76-04/30/78	FY77 $10,000	TOTAL $18,000
Prin Invest	NASA Tech Officer	CASE Category
Kenny, A D	ARC/Holton, E M	51-Biology

NAS 1-9685 **University of Houston - Houston** **3398**
Participation in the science planning for the Viking 1975 missions in the area of molecular analysis

Period	Obligations	
03/17/70-09/30/78	FY77 $25,328	TOTAL $460,237
Prin Invest	NASA Tech Officer	CASE Category
Oro, J	LARC/Williams, L S, Jr LARC/Glenny, W R	39-Env Sci, NEC

NAS 2-9072 **University of Houston - Houston** **3399**
Enumeration of viruses in water by laser beam spectrofluorometry

Period	Obligations	
02/10/76-11/14/76	FY77	TOTAL $15,000
Prin Invest	NASA Tech Officer	CASE Category
Allred, J C Bartel, A H	ARC/Gimoza, H S	51-Biology

NAS 9-11676 **University of Houston - Houston** **3400**
Characterization of heat transfer in nutrient materials

Period	Obligations	
04/28/71-01/31/78	FY77	TOTAL $79,956
Prin Invest	NASA Tech Officer	CASE Category
Cox, J E	JSC/Sauer, R E	59-Life Sci, NEC

NAS 9-11845 **University of Houston - Houston** **3401**
Data encoding study for space communication system

Period	Obligations	
06/14/71-11/30/77	FY77	TOTAL $97,500
Prin Invest	NASA Tech Officer	CASE Category
Havre, H S	JSC/Kyle, H C	49-Engr, NEC

NAS 9-14209 **University of Houston - Houston** **3402**
Study of astrophysical problems

Period	Obligations	
06/01/74-04/01/78	FY77 $46,012	TOTAL $155,388
Prin Invest	NASA Tech Officer	CASE Category
Sheldon, W R	JSC/Golden, R E	11-Astronomy

NAS 9-14534 **University of Houston - Houston** **3403**
Development of automated analytical capability for the early detection of diabetes mellitus

Period	Obligations	
03/01/75-12/31/77	FY77 $19,900	TOTAL $115,500
Prin Invest	NASA Tech Officer	CASE Category
Zlatkis, A	JSC/Schneider, H J	53-Other Medical

NAS 9-14629 **University of Houston - Houston** **3404**
Application of high resolution gas chromatography

Period	Obligations	
05/21/75-12/31/77	FY77 $49,975	TOTAL $115,969
Prin Invest	NASA Tech Officer	CASE Category
Zlatkis, A	JSC/Schneider, H J	52-Clinical Med

NAS 9-14857 **University of Houston - Houston** **3405**
Effects of gravity on contractible proteins

Period	Obligations	
12/01/75-05/31/78	FY77 $25,000	TOTAL $50,000
Prin Invest	NASA Tech Officer	CASE Category
Henney, H R, Jr	JSC/Graves, R C	51-Biology

NAS 9-15000 **University of Houston - Houston** **3406**
Development of mathematical techniques for the analysis of remote sensing data

Period	Obligations	
05/18/76-02/28/78	FY77 $101,800	TOTAL $223,800
Prin Invest	NASA Tech Officer	CASE Category
Decell, H P	JSC/Browne, E D.	21-Mathematics

NAS 9-15193 **University of Houston - Houston** **3407**
Analysis and problem-solving of space shuttle aerodynamics and structures

Period	Obligations	
11/01/76-02/01/78	FY77 $42,900	TOTAL $42,900
Prin Invest	NASA Tech Officer	CASE Category
Michalopoulos, C O Wheeler, E E	JSC/Eggleston, J M	41-Aero Engr

NAS 9-15215 **University of Houston - Houston** **3408**
Methodology for confidence of replacement requirements

Period	Obligations	
12/01/76-11/30/77	FY77 $41,744	TOTAL $41,744
Prin Invest	NASA Tech Officer	CASE Category
Ostrolsky, B	JSC/Cohen, J H	21-Mathematics

NASW 2691 **University of Houston - Houston** **3409**
Revised narrative history of the Apollo-Saturn program

Period	Obligations	
06/28/74-01/01/77	FY77	TOTAL $48,682
Prin Invest	NASA Tech Officer	CASE Category
Unavailable	HQ-AD/Wright, M D	23-History

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NGR 44-005-002 **University of Houston - Houston** **3410**
Studies in organic cosmochemistry, including consideration of compound formation under primitive earth conditions & of organic material in selected meteorites

Period	Obligations	
06/18/62-11/30/77	FY77 $60,000	TOTAL $784,905
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Oro, J	HQ-SB/Young, R. S.	32-Geological Sci

NGR 44-005-091 **University of Houston - Houston** **3411**
Spectroscopic and photochemical study of photochromic compounds

Period	Obligations	
03/07/69-01/31/78	FY77 $50,000	TOTAL $455,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Becker, R. S.	HQ-SB/Young, R. S. HQ-SB/Halstead, T. W.	12-Chemistry

NGR 44-005-133 **University of Houston - Houston** **3412**
Investigation of auroral disturbances

Period	Obligations	
03/15/71-08/31/77	FY77	TOTAL $319,036
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Sheldon, W. R.	HQ-SL/Schmerling, E. R.	31-Atmos Sci

NGR 44-005-137 **University of Houston - Houston** **3413**
Thermomagnetic torques in gases

Period	Obligations	
02/17/71-09/01/78	FY77	TOTAL $129,200
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hildebrandt, A. F.	JSC/Kondo, Y.	13-Physics

NGT 44-005-114 **University of Houston - Houston** **3414**
Program of Faculty Space Systems Engineering Institute

Period	Obligations	
04/06/70-03/31/78	FY77 $101,823	TOTAL $825,080
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Huang, C. J.	HQ-P/Carter, C. H.	49-Engr, NEC

NGT 44-005-115 **University of Houston - Houston** **3415**
Summer faculty fellowship program in research

Period	Obligations	
05/06/74-03/31/78	FY77 $114,843	TOTAL $951,270
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Huang, C. J.	HQ-P/Carter, C. H.	49-Engr, NEC

NSG 1290 **University of Houston - Houston** **3416**
Acoustics-turbulence interaction in a circular jet

Period	Obligations	
02/15/76-05/14/77	FY77	TOTAL $33,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hussain, A. K.	LARC/Hefner, J. N.	41-Aero Engr

NSG 6008 **University of Houston - Houston** **3417**
Investigation of ionospheric disturbances using a parachute deployed payload

Period	Obligations	
12/01/75-11/30/77	FY77 $20,000	TOTAL $70,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Sheldon, W. R.	WFC/Ballance, C. W., Jr. WFC/Gray, J. W.	19-Phys Sci, NEC

NSG 7198 **University of Houston - Houston** **3418**
Closure and ratio correlation analysis of lunar chemical and grain size data

Period	Obligations	
04/01/76-03/31/77	FY77	TOTAL $6,980
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Butler, J. C.	HQ-SL/Williams, R. J. HQ-SL/Hinn, E. A.	32-Geological Sci

NSG 7228 **University of Houston - Houston** **3419**
Geologic mapping of the planet Mercury

Period	Obligations	
04/01/76-02/30/78	FY77 $11,738	TOTAL $28,010
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
King, E. A.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci

NSG 7300 **University of Houston - Houston** **3420**
The role of cell membranes in the regulation of lignification in pine cells

Period	Obligations	
10/01/76-09/30/77	FY77 $30,000	TOTAL $30,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hendrix, D. L.	HQ-SB/Halstead, T. W. HQ-SB/Young, R. S.	51-Biology

NSG 9042 **University of Houston - Houston** **3421**
Aromatic biosynthesis in pine tissues

Period	Obligations	
04/01/76-03/31/78	FY77 $59,800	TOTAL $59,800
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Coules, J. R.	HQ-SB/Halstead, T. W.	51-Biology

NSG 9043 **University of Houston - Clear Lake** **3422**
Cosmic ray and solar flare irradiation history of regolith crystals and agglutinates

Period	Obligations	
06/01/76-01/31/78	FY77 $37,000	TOTAL $61,600
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Blanford, G. E.	JSC/Harris, J. W.	13-Physics

NSG 2077 **University of Texas - Arlington** **3423**
Large eddy structure of a turbulent boundary layer

Period	Obligations	
03/15/75-06/30/78	FY77 $11,957	TOTAL $34,098
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Payne, F. R.	ARC/Rubesin, M. W. ARC/Marvin, J. G.	41-Aero Engr

NAS 1-14160 **University of Texas - Austin** **3424**
Study of nonlinear propagation effects in jet noise

Period	*Obligations*	
09/15/75-01/10/78	FY77: $40,813	TOTAL: $80,813
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Blackstock, D. T.	LARC/Hilton, D. A. LARC/Seiner, J. M.	41-Aero. Engr.

NAS 5-22576 **University of Texas - Austin** **3425**
Communications link characterization experiment

Period	*Obligations*	
09/08/75-11/07/77	FY77: $65,400	TOTAL: $139,400
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Stratton, A. W.	GSFC/Hirschmann, F.	45-Elec. Engr.

NAS 6-2454 **University of Texas - Austin** **3426**
GEOS-C research into solid earth dynamics

Period	*Obligations*	
03/15/74-10/31/77	FY77	TOTAL: $90,552
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Tapley, B. D. Schutz, B. E.	WFC/Stanley, H. R. WFC/Rossi, T. C.	32-Geological Sci.

NAS 8-31459 **University of Texas - Austin** **3427**
Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019

Period	*Obligations*	
06/30/75-06/30/77	FY77	TOTAL: $341,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hemze, K. Wray, J. D.	MSFC: Williams, J. R. MSFC/Duncan, B. J.	11-Astronomy

NAS 9-13680 **University of Texas - Austin** **3428**
Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions

Period	*Obligations*	
09/27/73-01/31/78	FY77: $30,000	TOTAL: $107,476
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Bertin, J. J.	JSC: Goodrich, W. D.	41-Aero. Engr.

NAS 9-14491 **University of Texas - Austin** **3429**
Adsorption pumping cryogenic refrigeration study

Period	*Obligations*	
02/10/75-04/01/78	FY77: $60,000	TOTAL: $178,200
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hartwig, W. H. Steinlink, H.	JSC: Richard, R. R. JSC/Nuss, R. W.	49-Engr., NEC

NAS 9-14581 **University of Texas - Austin** **3430**
Apollo passive seismic experiment

Period	*Obligations*	
02/01/75-01/31/78	FY77: $164,524	TOTAL: $682,808
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Latham, G. V.	JSC: Eichelman, W. F.	13-Physics

NAS 9-14810 **University of Texas - Austin** **3431**
Apollo lunar surface experiment package data processing

Period	*Obligations*	
10/01/75-01/31/78	FY77: $181,225	TOTAL: $547,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Latham, G. V.	JSC/Eichelman, W. F.	13-Physics

NAS 9-15093 **University of Texas - Austin** **3432**
Data analysis and associated data storage unit for interferometer system

Period	*Obligations*	
08/01/76-01/31/78	FY77: $8,725	TOTAL: $15,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Barnes, J.	JSC/Potter, A. E.	11-Astronomy

NAS 9-15217 **University of Texas - Austin** **3433**
Imaging radar math model and airborne imaging radar data collecting system

Period	*Obligations*	
12/15/76-09/14/78	FY77: $230,969	TOTAL: $230,969
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Tucker, A. J.	JSC/Pels, G. F.	49-Engr, NEC

NAS 9-15297 **University of Texas - Austin** **3434**
NASA Meal System for the Elderly - Conference

Period	*Obligations*	
04/01/77-07/31/77	FY77: $16,000	TOTAL: $16,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Schmandt, J.	JSC/Primeaux, G. R.	59-Life Sci, NEC

NAS 9-15401 **University of Texas - Austin** **3435**
Shuttle imaging radar flight systems antenna tradeoff and evaluation study

Period	*Obligations*	
08/01/77-08/31/78	FY77: $49,800	TOTAL: $49,800
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Crow, G. E.	JSC: Nitschke, H. A.	41-Aero. Engr.

NASW 2974 **University of Texas - Austin** **3436**
Design, development, construction and operational testing of a completely operational transportable lunar laser tracking station capable of attaining a three century range accuracy

Period	*Obligations*	
07/16/76-05/31/78	FY77	TOTAL: $1,351,631
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Silverberg, E. C.	HQ-SM: Shirey, W. H.	19-Phys. Sci, NEC

NGT 44-012-006 **University of Texas - Austin** **3437**
Research on millimeter wavelength radiation from solar bodies

Period	*Obligations*	
04/29/63-03/31/80	FY77: $64,991	TOTAL: $1,466,333
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Wilson, W. J.	HQ-SL: Brunk, W. E. HQ-SL: Quarde, W. E.	11-Astronomy

NGL 44-012-055 **University of Texas - Austin** **3438**
Polarization and time structure of Jovian decametric radiation and the structure of interplanetary plasma

Period	Obligations	
03/25/66-04/30/80	FY77:	TOTAL: $928,586

Prin. Invest.	NASA Tech. Officer	CASE Category
Douglas, J. N.	HQ-SL/Brunk, W. E. HQ-SL/Quaide, W. L.	11-Astronomy

NGR 44-012-152 **University of Texas - Austin** **3439**
A program of planetary studies

Period	Obligations		
06/25/69-08/30/78	FY77: $410,297	TOTAL: $2,815,485	

Prin. Invest.	NASA Tech. Officer	CASE Category
Trafton, L. M.	HQ-SL/Brunk, W. E. HQ-SL/Quaide, W. L.	11-Astronomy

NGR 44-012-165 **University of Texas - Austin** **3440**
Continuation of lunar laser ranging experiments at McDonald Observatory

Period	Obligations		
10/11/69-08/31/78	FY77: $360,701	TOTAL: $2,549,462	

Prin. Invest.	NASA Tech. Officer	CASE Category
Silverberg, E. C.	HQ-SL/Hinn, E. A.	32-Geological Sci

NGR 44-012-209 **University of Texas - Austin** **3441**
Study of optical properties of X-ray source

Period	Obligations	
05/26/71-08/31/77	FY77	TOTAL: $58,838

Prin. Invest.	NASA Tech. Officer	CASE Category
VanDenBout, P. A.	HQ-SA/Rosendhal, J. D.	11-Astronomy

NGR 44-012-225 **University of Texas - Austin** **3442**
Stable carbon isotope ratio variations in blue-green algae as a function of growth conditions

Period	Obligations	
06/20/72-01/31/77	FY77	TOTAL: $55,916

Prin. Invest.	NASA Tech. Officer	CASE Category
Parker, P. L. VanBaalen, C.	HQ-SL/Young, R. S.	32-Geological Sci

NGR 44-012-258 **University of Texas - Austin** **3443**
Stark broadening of heavy neutral atoms and ions

Period	Obligations	
00/00/00-12/31/76	FY77	TOTAL: $27,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Bengtson, P. D.	HQ-SL/Timothy, A. F.	11-Astronomy

NGR 44-012-282 **University of Texas - Austin** **3444**
Outer planet satellite studies

Period	Obligations		
09/01/73-07/31/78	FY77: $40	TOTAL: $152,707	

Prin. Invest.	NASA Tech. Officer	CASE Category
Mulholland, J. D.	HQ-SL/Brunk, W. E. HQ-SL/Quaide, W. L.	11-Astronomy

NGR 44-012-283 **University of Texas - Austin** **3445**
Precision orbit determination for near-earth satellites

Period	Obligations		
01/14/74-05/31/78	FY77: $30,000	TOTAL: $114,419	

Prin. Invest.	NASA Tech. Officer	CASE Category
Tapley, B. D. Schutz, B. E.	GSFC/Kolenkiewicz, R. GSFC/Smith, D. E.	32-Geological Sci

NSG 1440 **University of Texas - Austin** **3446**
Accelerating convergence of collocation methods

Period	Obligations	
09/01/77-08/31/78	FY77: $13,809	TOTAL: $13,809

Prin. Invest.	NASA Tech. Officer	CASE Category
Daniel, J. W.	LARC/Shoosmith, J. N.	21-Mathematics

NSG 1446 **University of Texas - Austin** **3447**
Research into a data management system for scientific/engineering applications

Period	Obligations	
09/01/77-12/31/77	FY77: $10,000	TOTAL: $10,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Browne, J. C.	LARC/Shipman, J. S. LARC/Shoosmith, J. N.	22-Computer Sci

NSG 2065 **University of Texas - Austin** **3448**
Antecedents of achievement and creativity

Period	Obligations	
02/01/75-12/01/77	FY77: $53,210	TOTAL: $132,710

Prin. Invest.	NASA Tech. Officer	CASE Category
Helmreich, R. L.	ARC/Tanner, J. A., Jr. ARC/Patton, R. M.	69-Psych, NEC

NSG 2189 **University of Texas - Austin** **3449**
Relationships between wall pressure and turbulent motions in a boundary layer

Period	Obligations	
11/01/76-10/31/77	FY77: $11,671	TOTAL: $11,671

Prin. Invest.	NASA Tech. Officer	CASE Category
Panton, R. L.	ARC/Coe, C. F.	41-Aero Engr

NSG 3089 **University of Texas - Austin** **3450**
Plasma fluctuation diagnostic tool for the Bumpy Torus experiment

Period	Obligations	
11/17/75-12/31/77	FY77: $30,000	TOTAL: $60,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Powers, E. J.	LERC/Roth, J. R.	45-Elec Engr

NSG 5005 **University of Texas - Austin** **3451**
Observations of emission lines in M Super X Grants

Period	Obligations	
08/01/74-12/31/77	FY77:	TOTAL: $20,778

Prin. Invest.	NASA Tech. Officer	CASE Category
Lambert, D. L.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

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NSG 5154 **University of Texas - Austin** **3452**
Research of autonomous satellite navigational methods using global positioning satellite system

Period *Obligations*
03/01/77-02/28/78 FY77 $46,843 TOTAL $46,843
Prin Invest *NASA Tech Officer* *CASE Category*
Tapley, B. D GSFC/Fuchs, A. J 21-Mathematics
Scutz, B. E GSFC/Wooden, W. H

NSG 5167 **University of Texas - Austin** **3453**
Copernicus observations of stellar winds in early B-type stars

Period *Obligations*
03/14/77-03/13/78 FY77 $3,418 TOTAL: $3,418
Prin Invest *NASA Tech Officer* *CASE Category*
Smith, M. A GSFC/Kupperian, J. E., Jr 11-Astronomy

NSG 7159 **University of Texas - Austin** **3454**
Preliminary geophysical and geological survey of the region of the McDonald Observatory

Period *Obligations*
09/08/75-12/31/77 FY77 $114,375 TOTAL: $188,352
Prin Invest *NASA Tech Officer* *CASE Category*
Dorman, J. H. HQ-ES/Flinn, E. A 19-Phys Sci, NEC
Latham, G. V.

NSG 7162 **University of Texas - Austin** **3455**
Lunar laser data identification and management

Period *Obligations*
09/01/75-08/31/77 FY77 $78,223 TOTAL: $139,115
Prin Invest *NASA Tech Officer* *CASE Category*
Shelus, P. J. HQ-SL/Shirey, W. H. 19-Phys Sci, NEC

NSG 7232 **University of Texas - Austin** **3456**
Astrophysics of supermassive accretion disks

Period *Obligations*
05/01/76-04/30/78 FY77 $13,770 TOTAL $30,376
Prin Invest *NASA Tech Officer* *CASE Category*
Wheeler, J. C HQ-SA/Roman, N. G 11-Astronomy
HQ-SA/Rosendhal, J. D

NSG 7250 **University of Texas - Austin** **3457**
Late Cenozoic tectonic history in the region of the McDonald Observatory, Trans-Pecos, Texas

Period *Obligations*
07/01/76-09/30/77 FY77 TOTAL: $18,962
Prin Invest *NASA Tech Officer* *CASE Category*
Muehlberger, W. R HQ-SL/Smith, M. J 32-Geological Sci
HQ-SL/Flinn, E. A

NSG 7326 **University of Texas - Austin** **3458**
Origin of channels on Mars

Period *Obligations*
01/01/77-12/31/78 FY77 $10,126 TOTAL $10,126
Prin Invest *NASA Tech Officer* *CASE Category*
Baker, V. R HQ-SL/Dwornik, S. E 32-Geological Sci
HQ-SL/Wahlmann, R

NSG 7347 **University of Texas - Austin** **3459**
Atomic line strengths and stark broadening for selected compounds

Period *Obligations*
06/01/77-05/31/78 FY77 $6,000 TOTAL $6,000
Prin Invest *NASA Tech Officer* *CASE Category*
Benge'son, R. D HQ-SA/Rosendhal, J. D 11-Astronomy
HQ-SA/Roman, N. G

NSG 7363 **University of Texas - Austin** **3460**
Lunar tectonics through space and time

Period *Obligations*
07/01/77-01/31/79 FY77 $50,509 TOTAL: $50,509
Prin Invest *NASA Tech Officer* *CASE Category*
Muehlberger, W. R HQ-SL/Goldstein, B. E
HQ-SL/Quaide, W. L. 32-Geological Sci

NSG 9021 **University of Texas - Austin** **3461**
Origin of magnetization in lunar breccias and its bearing on their formation

Period *Obligations*
02/01/75-01/31/78 FY77 $33,100 TOTAL $84,525
Prin Invest *NASA Tech Officer* *CASE Category*
Gose, W. A. JSC/Harris, J. W. 32-Geological Sci

NAS 1-9699 **University of Texas - Dallas** **3462**
Participation in the science planning for the Viking 1975 missions in the area of entry science

Period *Obligations*
04/08/70-09/30/77 FY77 $23,858 TOTAL $243,351
Prin Invest *NASA Tech Officer* *CASE Category*
Hanson, W. B LARC/Williams, T. S., Jr
LARC/Glenny, W. R 99-Multi-Discip

NAS 2-8802 **University of Texas - Dallas** **3463**
Pioneer/Venus neutral mass spectrometer

Period *Obligations*
05/12/75-08/31/78 FY77 $590,000 TOTAL $2,615,000
Prin Invest *NASA Tech Officer* *CASE Category*
Hoffman, J. H ARC/Hall, C. F 31-Atmos Sci
York, D. R ARC/Polaski, L. R

NAS 2-9485 **University of Texas - Dallas** **3464**
Pioneer/Venus data analysis

Period *Obligations*
06/16/77-09/30/78 FY77 $20,000 TOTAL 20,000
Prin Invest *NASA Tech Officer* *CASE Category*
Hoffman, J. H. ARC/Hall, C. F 31-Atmos Sci

NAS 5-11406 **University of Texas - Dallas** **3465**
Atmosphere Explorer magnetic ion mass spectrometer

Period *Obligations*
04/06/71-11/19/77 FY77 $145,523 TOTAL $1,298,523
Prin Invest *NASA Tech Officer* *CASE Category*
Hoffman, J. H GSFC/Gustafson, C. 31-Atmos Sci

NAS 5-11407 **University of Texas - Dallas** **3466**
Planar ion trap experiment

Period	Obligations	
04/06/71-11/30/77	FY77: $142,000	TOTAL: $1,442,079

Prin. Invest.	NASA Tech. Officer	CASE Category
Hanson, W. B. Sanatani, S.	GSFC/Gustafson, C.	31-Atmos Sci

NAS 5-23804 **University of Texas - Dallas** **3467**
Study on low altitude plasma instrument to be flown on the electrodynamics Explorer

Period	Obligations	
12/08/76-06/07/77	FY77 $15,000	TOTAL $15,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Winningham, J. D	GSFC/Hoffman, R. A	13-Physics

NAS 8-31775 **University of Texas - Dallas** **3468**
Study of AIS 6 and OGO 5 data analysis

Period	Obligations	
03/18/76-12/17/77	FY77 $18,000	TOTAL: $23,920

Prin. Invest.	NASA Tech. Officer	CASE Category
Hanson, W. B Hoffman, J. H	MSFC/Chappell, C. R MSFC/Fields, S. A	19-Phys Sci, NEC

NASR 177 **University of Texas - Dallas** **3469**
Investigations of the neutral composition of the upper atmosphere

Period	Obligations	
12/01/63-08/31/75	FY77	TOTAL $170,405

Prin. Invest.	NASA Tech. Officer	CASE Category
Hanson, W. B	HQ-SA/Unavailable	31-Atmos Sci

NGL 44-004-026 **University of Texas - Dallas** **3470**
Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere

Period	Obligations	
05/05/65-03/31/80	FY77 $200,000	TOTAL $2,173,751

Prin. Invest.	NASA Tech. Officer	CASE Category
Johnson, F. S.	HQ-SL/Fellows, R. F HQ-SL/Brunk, W. F	31-Atmos Sci

NGL 44-004-130 **University of Texas - Dallas** **3471**
Selected studies in the space sciences

Period	Obligations	
03/17/72-04/01/80	FY77 $300,000	TOTAL $1,300,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Johnson, F. S.	HQ-P/Carter, C. H	99-Multi Discip

NGR 44-004-030 **University of Texas - Dallas** **3472**
Study of electron collision frequency under ionospheric conditions

Period	Obligations	
05/05/65-12/31/76	FY77	TOTAL $580,765

Prin. Invest.	NASA Tech. Officer	CASE Category
Heikkila, W. J	HQ-SL/Cauffman, D. P HQ-SL/Schmerling, E. R	13-Physics

NGR 44-004-120 **University of Texas - Dallas** **3473**
Rocket probes for the upper F-region

Period	Obligations	
02/09/71-01/31/78	FY77: $90,000	TOTAL: $895,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Hanson, W. B.	HQ-ST/Taylor, W. W HQ-ST/Schmerling, E. R.	31-Atmos Sci

NGR 44-004-124 **University of Texas - Dallas** **3474**
Rocket investigation of auroral zone disturbances

Period	Obligations	
08/10/71-08/31/78	FY77: $126,565	TOTAL: $929,551

Prin. Invest.	NASA Tech. Officer	CASE Category
Heikkila, W. J. Winningham, J. D.	GSFC/Bissell, E. F. HQ-ST/Schmerling, E. R.	13-Physics

NSG 5085 **University of Texas - Dallas** **3475**
Particle spectrometer onboard ISIS-2

Period	Obligations	
11/01/75-12/31/77	FY77: $45,000	TOTAL: $95,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Heikkila, W. J. Winningham, J. D	GSFC/Brace, L. H	31-Atmos Sci

NSG 5087 **University of Texas - Dallas** **3476**
Ion composition research on ISIS-2

Period	Obligations	
12/01/75-11/30/77	FY77 $25,000	TOTAL $55,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Anderson, D. C.	GSFC/Brace, L. H	31-Atmos Sci

NSG 6012 **University of Texas - Dallas** **3477**
Rocket/satellite program in aeronomy

Period	Obligations	
06/27/76-03/22/78	FY77 $60,000	TOTAL $110,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Christensen, A. B	MFC/Ballance, C. W., Jr MFC/Gray, J. W	19-Phys Sci, NEC

NSG 7034 **University of Texas - Dallas** **3478**
Investigation of the daytime lunar atmosphere for lunar synthesis program

Period	Obligations	
04/01/74-03/31/78	FY77 $48,920	TOTAL $181,931

Prin. Invest.	NASA Tech. Officer	CASE Category
Hodges, R. R., Jr	HQ-SL/Goldstein, B. E HQ-SL/Quarde, W. E	31-Atmos Sci

NGL 44-085-750 **University of Texas - El Paso** **3479**
Training of undergraduate students in sciences and engineering

Period	Obligations	
06/01/75-12/31/77	FY77	TOTAL $14,000

Prin. Invest.	NASA Tech. Officer	CASE Category
Guard, R. W	HQ-P/Pohly, J. G	49-Engr, NEC

NSG 1316 **University of Texas - El Paso** **3480**
ESR studies of viscous liquid crystals: Electric field effects

Period	Obligations	
07/01/76-09/30/78	FY77:	TOTAL: $49,740
Prin Invest	*NASA Tech Officer*	*CASE Category*
Eastman, M. P.	LARC/Breckenridge, R. A.	13-Physics
Bruno, G. V	LARC/Robertson, J. B.	
Lawson, J. O.		

NSG 3146 **University of Texas - El Paso** **3481**
Size effect studies of thin metal films

Period	Obligations	
05/02/77-05/01/78	FY77: $24,996	TOTAL: $24,996
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brient, S. J	LERC/Brandhorst, H. W., Jr.	
Roser, W. R.		47-Materials Engr
	LERC/Baraona, C. R.	

NAS 9-14641 **Univ of Texas Medical Branch - Galveston** **3482**
Analysis of spontaneous vestibular primary afferent discharge following application of drugs

Period	Obligations	
05/01/75-03/31/78	FY77: $30,000	TOTAL: $74,973
Prin Invest	*NASA Tech Officer*	*CASE Category*
Correia, M. J.	JSC/Reschke, M. F	69-Psych, NEC

NGR 44-088-002 **Univ of Texas Medical Branch - Galveston** **3483**
Mechanisms of cerebral blood flow changes during acceleration stress

Period	Obligations	
10/13/75-10/30/77	FY77: $34,910	TOTAL: $186,702
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stone, H. L.	ARC/McCutcheon, E. P	
Dowell, R. T	ARC/Sandler, H.	52-Clinical Med

NSG 9026 **University of Texas Health Center - Dallas** **3484**
Cardiovascular effect of variations in habitual levels of physical activity

Period	Obligations	
03/01/75-02/28/78	FY77: $50,600	TOTAL: $172,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Blomquist, C. G	JSC/Hoffler, G. W.	52-Clinical Med
Mitchell, J. H.		

NSG 9049 **Univ of Texas Health Sci Ctr-San Antonio** **3485**
Trace elements in planetary material by activation analysis

Period	Obligations	
02/01/77-01/31/78	FY77: $62,100	TOTAL: $62,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Morgan, J. W	JSC/Harris, J. W.	13-Physics

NAS 9-15388 **Univ of Texas-Health Science Center** **3486**
Biochemical adaptation of antigravity muscle fibers to disuse atrophy

Period	Obligations	
08/01/77-07/31/78	FY77: $28,000	TOTAL: $28,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Booth, F.	JSC/Rambaut, P. C.	51-Biology

NAS 8-32563 **University of Texas - San Antonio** **3487**
Atmosphere Explorer data analysis and electrodynamics Explorer instrument development

Period	Obligations	
06/15/77-02/14/78	FY77: $19,923	TOTAL: $19,923
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burch, J. L	MSFC/Chappell, C. R	31-Atmos Sci
	MSFC/Fields, S. A	

NSG 5214 **University of Texas - San Antonio** **3488**
Research of solar wind and magnetospheric electric fields and plasmas

Period	Obligations	
10/01/77-09/30/78	FY77: $34,000	TOTAL: $34,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Burch, J. L	GSFC/Spencer, N. W	13-Physics

NGR 44-015-003 **West Texas State University** **3489**
Geology of Mare Acidalium quadrangle MC-4

Period	Obligations	
04/25/73-07/31/77	FY77: $8,800	TOTAL: $48,213
Prin Invest	*NASA Tech Officer*	*CASE Category*
Underwood, J. R	HQ-SL/Dwornik, S. E	32-Geological Sci
	HQ-SL/Wahmann, R.	

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NAS 2-7358 **Brigham Young University** **3490**
Analysis of Pioneer E & G solar terrestrial relationship data

Period	Obligations	
00/00/00-09/30/77	FY77	TOTAL: $46,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jones, D. E	ARC/Hall, C. F	13-Physics
	ARC/Porter, D. E	

NAS 9-14499 **Brigham Young University** **3491**
Study scanning electron microscopy glass particles produced by lava fountain eruptions

Period	Obligations	
01/01/75-12/31/77	FY77	TOTAL: $33,650
Prin Invest	*NASA Tech Officer*	*CASE Category*
Laole, G. H	JSC/Phinney, W. C	32-Geological Sci

NGR 45-001-011 **Brigham Young University** **3492**
Analysis and interpretation of magnetic field measurements between Earth and Mars received from Mariner IV

Period	Obligations	
05/10/65-09/30/76	FY77:	TOTAL: $206,571
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jones, D. E.	HQ-ST/Cauffman, D. P.	39-Env Sci, NEC

NGR 45-001-032 **Brigham Young University** **3493**
Microwave studies of planetary atmospheres

Period	Obligations	
06/05/70-08/31/7[illegible]	FY77:	TOTAL: $16,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jones, D. E	HQ-SL/B[illegible], W. E.	11-Astronomy

NSG 3068 **Brigham Young University** **3494**
Microwave diagnostic instrumentation for steady state plasma

Period	Obligations	
01/01/75-12/31/76	FY77:	TOTAL: $13,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gardner, A. L.	LERC/Roth, J. R.	13-Physics

NAS 1-12705 **University of Utah** **3495**
Science planning for the Viking 1975 missions in the area of physical properties

Period	Obligations	
01/14/74-03/31/77	FY77: $77,202	TOTAL: $211,689
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shorthill, R. W.	LARC/Williams, T. S., Jr.	19-Phys Sci, NEC
	LARC/Glenny, W. R.	

NAS 2-9555 **University of Utah** **3496**
2450 MHz microwave absorption in large and small animals and its biobehavioral effects on birds and reptiles

Period	Obligations	
03/18/77-09/17/77	FY77: $39,564	TOTAL: $39,564
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ghandi, O. M.	ARC/Johnson, R. D.	51-Biology
	ARC/Kennard, J.	

NAS 5-20955 **University of Utah** **3497**
ERTS data follow-on investigation

Period	Obligations	
03/13/75-06/12/77	FY77:	TOTAL: $126,230
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nackowski, M.	GSFC/Broderick, J. C.	32-Geological Sci

NAS 6-2498 **University of Utah** **3498**
Upper atmospheric physical and dynamic processes

Period	Obligations	
04/26/74-10/26/77	FY77:	TOTAL: $79,009
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kao, S. K.	WFC/Duke, J. R.	31-Atmos Sci

NAS 6-2627 **University of Utah** **3499**
Rocketsonde data processing and participation in the meteorological rocket: Nimbus satellite data comparison project

Period	Obligations	
03/21/75-04/30/78	FY77: $6,265	TOTAL: $146,265
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stewart, A. I.	WFC/Duke, J. R.	31-Atmos Sci
	WFC/Schmidlin, F. J.	

NASW 2648 **University of Utah** **3500**
Studying the earth from space

Period	Obligations	
05/21/74-02/28/77	FY77:	TOTAL: $15,054
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ridd, M. K.	HQ-FE/Tuttle, F. B.	39-Env Sci, NEC
McCoy, R. M.	HQ-FE/Ahrendt, M. H.	

NASW 2967 **University of Utah** **3501**
Construction and testing of rotating SAGNAC interferometer

Period	Obligations	
09/28/76-09/20/77	FY77:	TOTAL: $39,996
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vali, V.	HQ-RR/Randolph, L. P.	13-Physics
	JPL/Goss, W.	

NGR 45-003-108 **University of Utah** **3502**
Applications of computer speech recognition in flight management

Period	Obligations	
11/01/73-11/01/77	FY77: $42,495	TOTAL: $88,304
Prin Invest	*NASA Tech Officer*	*CASE Category*
Plummer, R. P.	ARC/Wempe, T. E.	45-Elec Engr

NSG 1272 **University of Utah** **3503**
An investigation of the relationship between annoyance and the duration of aircraft flyovers

Period	Obligations	
02/01/76-11/14/77	FY77: $14,130	TOTAL: $51,257
Prin Invest	*NASA Tech Officer*	*CASE Category*
Shepherd, K. P.	LARC/Cawthorn, J. M.	39-Env Sci, NEC
	LARC/Stephens, D. G.	

NSG 1313 **University of Utah** **3504**
Innovative concepts in large area space

Period	Obligations	
07/01/76-06/30/78	FY77:	TOTAL: $32,463
Prin Invest	*NASA Tech Officer*	*CASE Category*
Resch, R. D.	LARC/Card, M. F.	49-Engr, NEC
	LARC/Mikulas, M. M., Jr	

NSG 7226 **University of Utah** **3505**
Identifying environmental features for land management decisions

Period	Obligations	
08/01/76-07/31/80	FY77: $100,000	TOTAL: $300,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ridd, M. K.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

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UTAH (Continued)

NAS 2-9557 **Utah State University** **3506**
Liquid phase ozone in Freon gas

Period	Obligations	
04/01/77-03/31/78	FY77 $5,387	TOTAL $5,387
Prin Invest	*NASA Tech Officer*	*CASE Category*
Jeppesen, H	ARC/Lowenstein, M.	31-Atmos Sci

NAS 8-32636 **Utah State University** **3507**
Large spacecraft interaction with ambient environment at geosynchronous earth orbit charging

Period	Obligations	
09/20/77-09/19/78	FY77: $15,000	TOTAL $15,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Ratt, W J.	MSFC/Chappell, C R.	31-Atmos Sci
	MSFC/Baugher, C. R.	

NAS 9-14871 **Utah State University** **3508**
Higher plant response to elevated ultraviolet irradiance

Period	Obligations	
10/08/75-12/31/77	FY77 $105,000	TOTAL $180,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Caldwell, M M	JSC/Nachtwey, D. S	51-Biology

NSG 7038 **Utah State University** **3509**
The diagenesis of geologically important organic matter and amino acids under simulated natural conditions

Period	Obligations	
06/01/74-05/31/78	FY77 $48,000	TOTAL $215,352
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, G. G.	HQ-SB/Young, R. S	32-Geological Sci

NSG 7206 **Utah State University** **3510**
Mass spectrometric study of chlorinated species by negative surface ionization

Period	Obligations	
03/15/76-12/31/77	FY77 $25,476	TOTAL $52,396
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moore, W M	HQ-SU/Tilford, S G	12-Chemistry
	HQ-SU/Simon, N. K	

NSG 7210 **Utah State University** **3511**
Stratospheric monitoring with longterm balloon flights

Period	Obligations	
03/01/76-02/28/78	FY77 $183,024	TOTAL $307,117
Prin Invest	*NASA Tech Officer*	*CASE Category*
Baker, K D	HQ-SU/Greenwood, L R.	31-Atmos Sci
Williamson, P R	HQ-SU/Tilford, S. G.	
Shaw, A		

NSG 7289 **Utah State University** **3512**
Study of the dynamics of atmosphere-ionosphere magnetosphere interactions

Period	Obligations	
07/01/76-06/30/77	FY77 $80,000	TOTAL $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Banks, P M	HQ-ST/Cauffman, D P	31-Atmos Sci

VERMONT

NSG 5198 **Middlebury College** **3513**
Investigations of X-ray emission from supernova remnants

Period	Obligations	
08/01/77-07/31/78	FY77 $14,980	TOTAL $14,980
Prin Invest	*NASA Tech Officer*	*CASE Category*
Winkler, P. F	GSFC/Kupperian, J. E., Jr	11-Astronomy

VIRGINIA

NAS 1-14034 **Christopher Newport College** **3514**
Quality control checks for VGH records

Period	Obligations	
07/01/75-09/30/77	FY77 $20,167	TOTAL $40,948
Prin Invest	*NASA Tech Officer*	*CASE Category*
Roby, A B	LARC/Morris, G. J	41-Aero Engr
	LARC/Jewell, J W , Jr.	

NSG 1429 **Christopher Newport College** **3515**
An investigation of the edge-tone effect

Period	Obligations	
07/01/77-06/30/78	FY77 $20,920	TOTAL $20,920
Prin Invest	*NASA Tech Officer*	*CASE Category*
Buoncristiani, A. M.	LARC/Lansing, D. L.	21-Mathematics
Webb, G R.		

NAS 1-14972 **College of William And Mary** **3516**
Research in the area of physical sciences

Period	Obligations	
05/31/77-05/30/80	FY77 $13,940	TOTAL $13,940
Prin Invest	*NASA Tech Officer*	*CASE Category*
Aceto, H , Jr.	LARC/Anderson, A. F	99-Multi-Discip

NGL 47-006-058 **College of William And Mary** **3517**
Research in the applied science program

Period	Obligations	
08/15/72-08/31/79	FY77 $50,000	TOTAL $398,400
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rublein, G T	LARC/Anderson, A F	99-Multi-Discip

NSG 1089 **College of William And Mary** **3518**
Theory of the properties of materials used in solid state sensors

Period	Obligations	
09/01/74-08/31/77	FY77	TOTAL $72,577
Prin Invest	*NASA Tech Officer*	*CASE Category*
Moriarity, J A	LARC/Breckenridge, R A	13-Physics
Sher, A	LARC/Crouch, R K	

NSG 1095 **College of William And Mary** **3519**
Molecular weight-property relationships of high performance polymers used for adhesives and composites
Period 09/01/74-02/28/78 *Obligations* FY77: $11,491 TOTAL: $41,294
Prin Invest Kranbuehl, D. E. *NASA Tech Officer* LARC/Young, P. R.; LARC/Johnston, N. J. *CASE Category* 12-Chemistry

NSG 1203 **College of William And Mary** **3520**
Analysis of remote sensors for pollution
Period 08/01/75-07/31/78 *Obligations* FY77: $34,053 TOTAL: $87,875
Prin Invest Park, J. H. *NASA Tech Officer* LARC/Russell, J. M., III; LARC/Brockman, P. *CASE Category* 31-Atmos Sci

NSG 1385 **College of William And Mary** **3521**
New infrared detectors and solar cells
Period 02/01/77-01/31/78 *Obligations* FY77: $40,000 TOTAL: $40,000
Prin Invest Sher, A. *NASA Tech Officer* LARC/Crouch, R. K. *CASE Category* 13-Physics

NSG 1435 **College of William And Mary** **3522**
Development of a multi-target compiler writing system
Period 07/11/77-03/10/78 *Obligations* FY77: $40,000 TOTAL: $40,000
Prin Invest Feyock, S.; Donegan, M. K. *NASA Tech Officer* LARC/Knight, J. C.; LARC/Will, R. W. *CASE Category* 21-Mathematics

NSG 7073 **College of William And Mary** **3523**
The response of hematopoietic stem cells to different linear energy transfer distribution of helium ion beams
Period 05/23/74-12/31/75 *Obligations* FY77: TOTAL: $20,000
Prin Invest Aceto, H., Jr. *NASA Tech Officer* HQ-SB/Jones, W. L. *CASE Category* 59-Life Sci, NEC

NAS 6-2707 **Eastern Shore Community College** **3524**
Informing general public and schools of activities of Wallops Flight Center
Period 01/01/76-12/31/77 *Obligations* FY77: $11,759 TOTAL: $23,545
Prin Invest Unavailable *NASA Tech Officer* WFC/Milliner, J. B. *CASE Category* 99-Multi-Discip

NCA 1-6 **George Mason University** **3525**
Summer student training program
Period 06/06/77-09/15/77 *Obligations* FY77: $19,143 TOTAL: $19,143
Prin Invest Trehan, A. *NASA Tech Officer* LARC/Cox, J. *CASE Category* 49-Engr, NEC

NAS 1-14507 **Hampton Institute** **3526**
Conversion of flight records
Period 07/01/76-09/30/77 *Obligations* FY77: TOTAL: $34,688
Prin Invest Williams, G. K. *NASA Tech Officer* LARC/Jewell, J. W., Jr.; LARC/Morris, G. J. *CASE Category* 41-Aero Engr

NAS 1-14832 **Hampton Institute** **3527**
Summer research fellowship program
Period 02/04/77-12/14/78 *Obligations* FY77: $92,987 TOTAL: $92,987
Prin Invest Darden, G. C. *NASA Tech Officer* LARC/Erickson, W. D. *CASE Category* 19-Phys Sci, NEC

NCA 1-1 **Hampton Institute** **3528**
Summer faculty fellowship training program
Period 06/14/76-12/13/76 *Obligations* FY77: $180 TOTAL: $12,393
Prin Invest Darden, G. C *NASA Tech Officer* LARC/Anderson, A. F. *CASE Category* 49-Engr, NEC

NGR 47-020-006 **Hampton Institute** **3529**
Fast optical pulse recording system for laser ranging
Period 12/01/73-04/30/78 *Obligations* FY77: $35,972 TOTAL: $113,921
Prin Invest Trehan, A. K. *NASA Tech Officer* WFC/Hoge, F. E.; WFC/Parsons, C. L. *CASE Category* 19-Phys Sci, NEC

NSG 1086 **Hampton Institute** **3530**
High temperature kinetics studies of combustion processes by the shock tube technique
Period 08/01/74-12/31/77 *Obligations* FY77: $33,704 TOTAL: $65,210
Prin Invest Hunter, C. E. *NASA Tech Officer* LARC/Jachimowski, C. J. *CASE Category* 12-Chemistry

NSG 1294 **Hampton Institute** **3531**
Investigation of microprocessors as mass storage controllers for flight applications
Period 04/01/76-03/31/78 *Obligations* FY77: $46,698 TOTAL: $78,185
Prin Invest Trehan, A. K. *NASA Tech Officer* LARC/Katzberg, S. J.; LARC/Kelly, W. L. *CASE Category* 45-Elec Engr

NSG 1209 **Mary Baldwin College** **3532**
Faculty and student research participation in applied statistics at NASA/LRC
Period 07/01/75-04/30/78 *Obligations* FY77: $17,205 TOTAL: $25,109
Prin Invest Sawyer, J. O. *NASA Tech Officer* LARC/Campbell, J. W. *CASE Category* 21-Mathematics

NSG 1014 **Norfolk State College** **3533**
Numerical computations research
Period *Obligations*
04/01/74-09/30/77 FY77: $4,969 TOTAL: $88,902
Prin Invest *NASA Tech Officer* *CASE Category*
Thorne, K. S. LARC/Shoosmith, J. N. 21-Mathematics

NAS 1-11707 **Old Dominion University** **3534**
Research in physical and life sciences
Period *Obligations*
07/24/72-08/31/75 FY77: TOTAL: $1,080,232
Prin Invest *NASA Tech Officer* *CASE Category*
Ousterhout, D. S. LARC/Martin, D. J. 49-Engr, NEC

NAS 1-14193 **Old Dominion University** **3535**
Research in physical and life sciences
Period *Obligations*
10/01/75-09/30/78 FY77: $166,508 TOTAL: $404,038
Prin Invest *NASA Tech Officer* *CASE Category*
Ousterhout, D. S. LARC/Whitlock, C. H. 99-Multi-Discip

NGL 47-003-067 **Old Dominion University** **3536**
Interdisciplinary investigation of atmospheric processes and constituents of the Mid-Atlantic coastal region
Period *Obligations*
05/10/72-08/31/77 FY77: TOTAL: $300,000
Prin Invest *NASA Tech Officer* *CASE Category*
Kindle, E. C. HQ-P/Vitale, J. A. 31-Atmos Sci

NGR 47-003-052 **Old Dominion University** **3537**
Graduate research program in aeronautics and air transportation
Period *Obligations*
05/12/71-08/31/79 FY77: $54,603 TOTAL: $524,918
Prin Invest *NASA Tech Officer* *CASE Category*
Roberts, A. S., Jr. LARC/Duberg, J. E. 41-Aero Engr
LARC/Erickson, W. D.

NGT 47-003-028 **Old Dominion University** **3538**
Summer faculty fellowship program in engineering systems design
Period *Obligations*
11/14/69-03/31/78 FY77: $101,794 TOTAL: $771,855
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. HQ-P/Carter, C. H. 49-Engr, NEC

NGT 47-003-029 **Old Dominion University** **3539**
Summer faculty fellowship program in research
Period *Obligations*
11/14/69-03/31/78 FY77: $120,025 TOTAL: $878,826
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. HQ-P/Carter, C. H. 49-Engr, NEC

NSG 1028 **Old Dominion University** **3540**
Collection, reduction, and interpretation of neutral atmospheric measurements
Period *Obligations*
04/01/74-11/30/77 FY77: $52,000 TOTAL: $235,767
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. LARC/Keating, G. M. 31-Atmos Sci
Hinson, E.

NSG 1040 **Old Dominion University** **3541**
Computer simulation of plasma and n-body problems
Period *Obligations*
06/01/74-12/31/77 FY77. TOTAL: $43,069
Prin Invest *NASA Tech Officer* *CASE Category*
Harries, W. L. LARC/Hohl, F. 19-Phys Sci, NEC

NSG 1079 **Old Dominion University** **3542**
Optimal adaptive wind tunnel control
Period *Obligations*
09/01/74-11/30/77 FY77: $21,756 TOTAL: $73,956
Prin Invest *NASA Tech Officer* *CASE Category*
Tcheng, P. L. LARC/Tripp, J. S. 45-Elec Engr

NSG 1087 **Old Dominion University** **3543**
Turbulence closure modeling for high Mach number turbulent shear flows
Period *Obligations*
08/01/74-10/31/77 FY77 $32,350 TOTAL: $105,555
Prin Invest *NASA Tech Officer* *CASE Category*
Goglia, G. L. LARC/Hefner, J. N. 41-Aero Engr
Oh, Y. H. LARC/Harris, J. E.

NSG 1098 **Old Dominion University** **3544**
Investigation of nozzle afterbody viscous interaction effects by finite element methods
Period *Obligations*
09/09/74-05/30/77 FY77. TOTAL: $37,724
Prin Invest *NASA Tech Officer* *CASE Category*
Cooke, C. H. LARC/Harris, J. E. 41-Aero Engr

NSG 1100 **Old Dominion University** **3545**
Study of compliant wall drag reduction turbulent boundary layer and a compliant surface
Period *Obligations*
09/09/74-01/08/78 FY77 $26,762 TOTAL: $72,292
Prin Invest *NASA Tech Officer* *CASE Category*
Ash, R. L. LARC/Hefner, J. N. 41-Aero Engr

NSG 1127 **Old Dominion University** **3546**
Parameterization of gaseous constituencies concentration profiles in the planetary boundary layers
Period *Obligations*
12/09/74-07/31/77 FY77 TOTAL: $146,864
Prin Invest *NASA Tech Officer* *CASE Category*
Kindle, E. C. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Beck, S. M.

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NSG 1131 **Old Dominion University** **3547**
Remote measurements of atmospheric trace constituents

Period	*Obligations*	
01/01/75-01/31/78	FY77: $31,848	TOTAL: $86,555
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kindle, E. C.	LARC/Russell, J. M., III	31-Atmos Sci
Twitty, J.	LARC/Dodgen, J. A.	

NSG 1143 **Old Dominion University** **3548**
Sensor for measuring instantaneous angle of attack of helicopter blades

Period	*Obligations*	
01/13/75-03/12/78	FY77: $34,928	TOTAL: $103,213
Prin Invest	*NASA Tech Officer*	*CASE Category*
Barna, P. S.	LARC/Kershner, D. D	41-Aero Engr

NSG 1152 **Old Dominion University** **3549**
The Earth Moon system Dynamics and parameter estimation

Period	*Obligations*	
02/17/75-10/16/78	FY77: $6,000	TOTAL: $131,179
Prin Invest	*NASA Tech Officer*	*CASE Category*
Breedlove, W. J., Jr.	LARC/Gapcynski, J. P	19-Phys Sci, NEC

NSG 1167 **Old Dominion University** **3550**
The structural behavior of advanced composite materials

Period	*Obligations*	
06/01/75-05/31/80	FY77: $26,015	TOTAL: $105,637
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hyer, M. W.	LARC/Davis, J. G., Jr.	41-Aero Engr
	LARC/Pride, R. A.	

NSG 1177 **Old Dominion University** **3551**
Experimental and analytical studies in fluidics

Period	*Obligations*	
05/01/75-02/29/80	FY77: $30,678	TOTAL: $67,544
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goglia, G. L.	LARC/Hellbaum, R. F	45-Elec Engr

NSG 1197 **Old Dominion University** **3552**
Development of high pressure gas lasers and heterodyne detector systems in the 8 to 11 micron spectral region

Period	*Obligations*	
06/01/75-03/31/78	FY77: $55,156	TOTAL: $105,335
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kindle, E. C.	LARC/Allario, F	31-Atmos Sci
Harward, C. N		

NSG 1207 **Old Dominion University** **3553**
Collection, reduction and interpretation of the neutral thermospheric and exospheric measurements

Period	*Obligations*	
06/09/75-09/30/76	FY77	TOTAL: $110,125
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goglia, G. L.	LARC/Keating, G. M.	19-Phys Sci, NEC
	LARC/Lee, R. B., III	

NSG 1226 **Old Dominion University** **3554**
An analytical and/or numerical study of three-dimensional boundary layer flows

Period	*Obligations*	
09/01/75-10/31/77	FY77: $27,323	TOTAL: $58,918
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goglia, G. L.	LARC/Harris, J. E.	41-Aero Engr
Vatsa, V. N.		

NSG 1236 **Old Dominion University** **3555**
Analytical and numerical investigation of structural response of compliant wall materials

Period	*Obligations*	
08/26/75-11/30/77	FY77: $26,589	TOTAL: $55,994
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goglia, G. L.	LARC/Hefner, J. N.	46-Mech Engr
Balasubramanian, R		

NSG 1241 **Old Dominion University** **3556**
Linear and nonlinear analysis of orbital telescope/space shuttle dynamics and control

Period	*Obligations*	
09/15/75-11/14/77	FY77:	TOTAL: $67,341
Prin Invest	*NASA Tech Officer*	*CASE Category*
Roberts, A. S., Jr.	LARC/Keckler, C. R	49-Engr, NEC
Joshi, S. M.	LARC/Anderson, W. W.	

NSG 1245 **Old Dominion University** **3557**
Aerosol studies application to visibility measurements

Period	*Obligations*	
09/01/75-10/31/77	FY77: $28,084	TOTAL: $82,490
Prin Invest	*NASA Tech Officer*	*CASE Category*
Harris, F. S., Jr.	LARC/Fuller, W. H., Jr	
Kindle, E. C.		39-Env Sci, NEC

NSG 1252 **Old Dominion University** **3558**
The investigation of advanced remote sensing and inversion techniques for the measurement of atmospheric constituents

Period	*Obligations*	
09/15/75-12/01/77	FY77: $62,128	TOTAL: $112,161
Prin Invest	*NASA Tech Officer*	*CASE Category*
Deepak, A.	LARC/McCormick, M. P.	31-Atmos Sci
Becher, J.	LARC/Crumbly, K. H.	

NSG 1260 **Old Dominion University** **3559**
Improved optimum design of thermally loaded structures

Period	*Obligations*	
01/01/76-12/31/77	FY77:	TOTAL: $55,998
Prin Invest	*NASA Tech Officer*	*CASE Category*
Goglia, G. L.	LARC/Adelman, H. M.	41-Aero Engr
Narayanaswami, R.	LARC/Cooper, P. A.	

NSG 1271 **Old Dominion University** **3560**
Space shuttle experiments studies

Period	Obligations	
03/01/76-02/28/78	FY77: $150,873	TOTAL: $300,542
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brock, F. J.	LARC/Melfi, L. T., Jr.	13-Physics
Clay Jr., F. P.	LARC/Outlaw, R. A.	
Hueser, J. E.		

NSG 1279 **Old Dominion University** **3561**
Preliminary investigations into the active control of large space structures

Period	Obligations	
02/15/76-02/14/78	FY77: $30,479	TOTAL: $43,740
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hyer, M. W.	LARC/Kruszewski, E. T.	49-Engr, NEC
Tweed, J.		

NSG 1282 **Old Dominion University** **3562**
Determination of atmospheric pollutants from infrared radiation measurements

Period	Obligations	
03/01/76-03/31/78	FY77: $41,032	TOTAL: $66,386
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tiwari, S. N.	LARC/Reichle, H. G., Jr	31-Atmos Sci

NSG 1315 **Old Dominion University** **3563**
Wind tunnel studies of advanced cargo concepts

Period	Obligations	
06/22/76-06/21/78	FY77: $39,459	TOTAL: $78,525
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gogha, G. L.	LARC/Peterson, J. B., Jr.	41-Aero Engr
Rao, D. M.		

NSG 1318 **Old Dominion University** **3564**
Correlation and analysis of elevon seal test results

Period	Obligations	
07/01/76-08/31/77	FY77:	TOTAL: $30,361
Prin Invest	*NASA Tech Officer*	*CASE Category*
Keshock, E. G.	LARC/Hunt, L. R.	41-Aero Engr
	LARC/Deveikis, W. D.	

NSG 1321 **Old Dominion University** **3565**
Concepts for structurally compatible thermal finite elements

Period	Obligations	
09/01/76-12/31/77	FY77: $7,497	TOTAL: $27,998
Prin Invest	*NASA Tech Officer*	*CASE Category*
Thornton, E. A.	LARC/Wieting, A. R.	49-Engr, NEC

NSG 1324 **Old Dominion University** **3566**
The contribution of molecular relaxation in nitrogen to the absorption of sound in the atmosphere

Period	Obligations	
09/01/76-12/31/77	FY77: $1,625	TOTAL: $60,182
Prin Invest	*NASA Tech Officer*	*CASE Category*
Zuckerwar, A. J.	LARC/Holmes, H. K.	13-Physics
Kernell, R. L.		

NSG 1325 **Old Dominion University** **3567**
Modal identification of structures from time responses and random decrement signatures

Period	Obligations	
07/16/76-09/01/77	FY77:	TOTAL: $21,493
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gogha, G. L.	LARC/Hanks, B. R.	46-Mech Engr
Ibrahim, S. R.		

NSG 1331 **Old Dominion University** **3568**
Antenna design and development of microwave subsystem experiments of the terminal configured vehicle project

Period	Obligations	
08/01/76-11/30/77	FY77: $15,500	TOTAL: $31,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Becher, J.	LARC/Campbell, T. G.	45-Elec Engr

NSG 1341 **Old Dominion University** **3569**
Science and software support for spacecraft solar occultation experiments

Period	Obligations	
10/01/76-11/31/77	FY77: $5,021	TOTAL: $40,514
Prin Invest	*NASA Tech Officer*	*CASE Category*
Chu, W. P.	LARC/McMaster, L. R.	31-Atmos Sci
Becher, J.	LARC/McCormick, M. P.	

NSG 1343 **Old Dominion University** **3570**
Experimental/analytical program to assess the utility of lidar for pollution monitoring

Period	Obligations	
10/01/76-10/31/77	FY77: $15,492	TOTAL: $97,190
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kindle, E. C.	LARC/Browell, E. V.	39-Env Sci, NEC
Mills, F.		

NSG 1344 **Old Dominion University** **3571**
Dynamic characteristics of advanced composite rotor blades

Period	Obligations	
09/27/76-10/31/77	FY77: $2,409	TOTAL: $21,683
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gogha, G. L.	LARC/Jenkins, J. L.	41-Aero Engr
Murthy, V. R.		

NSG 1348 **Old Dominion University** **3572**
Computations in turbulent flows and off-design performance predictions for airframe-integrated scramjets

Period	Obligations	
10/08/76-10/07/77	FY77: $25,203	TOTAL: $25,203
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gogha, G. L.	LARC/Beach, H. L., Jr.	41-Aero Engr
Spiegler, E.	LARC/Jones, R. A.	

NSG 1350 **Old Dominion University** **3573**
Analysis of the ride quality stimuli of mass-transit systems
Period 11/01/76-12/31/77 *Obligations* FY77: $26,989 TOTAL: $26,989
Prin Invest Kirby, R. H.; Morgan, B. B.
NASA Tech Officer LARC/Dempsey, T. K.; LARC/Leatherwood, J. D.
CASE Category 99-Multi-Discip

NSG 1357 **Old Dominion University** **3574**
Experimental and analytical studies of separated vortex flow on highly swept wings
Period 11/08/76-11/07/77 *Obligations* FY77: $12,497 TOTAL: $12,497
Prin Invest Kuhlman, J. M.
NASA Tech Officer LARC/Gloss, B. B.; LARC/Polhamus, E. C.
CASE Category 41-Aero Engr

NSG 1362 **Old Dominion University** **3575**
Fission induced plasmas
Period 12/16/76-12/15/77 *Obligations* FY77: $29,494 TOTAL: $29,494
Prin Invest Harries, W. L.
NASA Tech Officer LARC/Hohl, F.
CASE Category 13-Physics

NSG 1370 **Old Dominion University** **3576**
Dynamic characteristics of rotor blades with pendulum absorbers
Period 01/01/77-10/31/77 *Obligations* FY77: $10,048 TOTAL: $10,048
Prin Invest Goglia, G. L.; Murthy, V. R.
NASA Tech Officer LARC/Hammond, C. E.
CASE Category 41-Aero Engr

NSG 1379 **Old Dominion University** **3577**
Investigation of efficient methods for oculometer system signal processing
Period 01/01/77-12/31/77 *Obligations* FY77: $54,772 TOTAL: $54,772
Prin Invest Varanasi, M. R.
NASA Tech Officer LARC/Waller, M. C.; LARC/Wise, M. A.
CASE Category 45-Elec Engr

NSG 1393 **Old Dominion University** **3578**
Computational solution of atmospheric chemistry problems
Period 06/01/77-11/30/78 *Obligations* FY77: $41,828 TOTAL: $41,828
Prin Invest Goglia, G. L.; Norbeck, J. M.
NASA Tech Officer LARC/Phillips, D. H.; LARC/Tolson, R. H.
CASE Category 12-Chemistry

NSG 1394 **Old Dominion University** **3579**
Evaluation of atmospheric trace constituent sensors operating from remote space and airborne platforms
Period 02/14/77-02/13/78 *Obligations* FY77: $36,771 TOTAL: $36,771
Prin Invest Kindle, E. C.
NASA Tech Officer LARC/Reichle, H. G., Jr.; LARC/Beck, S. M.
CASE Category 31-Atmos Sci

NSG 1395 **Old Dominion University** **3580**
Data reduction analysis and application technique development for atmospheric trace gas constituents derived from remote sensors on satellite or airborne platforms
Period 02/14/77-02/13/78 *Obligations* FY77: $73,164 TOTAL: $73,164
Prin Invest Kindle, E. C.
NASA Tech Officer LARC/Beck, S. M.; LARC/Reichle, H. G., Jr.
CASE Category 31-Atmos Sci

NSG 1426 **Old Dominion University** **3581**
Long term radiation and temperature effects on GaAs solar cell characteristics
Period 06/01/77-05/31/78 *Obligations* FY77: $25,039 TOTAL: $25,039
Prin Invest Heinbockel, J. H.; Doviak, M. J.
NASA Tech Officer LARC/Conway, E. J.; LARC/Walker, G. H.
CASE Category 21-Mathematics

NSG 1441 **Old Dominion University** **3582**
Interpretation and evaluation of experimental data related to remote sensing of ocean-dumped sewage sludge
Period 07/18/77-02/17/79 *Obligations* FY77: $55,000 TOTAL: $55,000
Prin Invest Kuo, C. Y.; Paeonia, P. S.
NASA Tech Officer LARC/Johnson, R. W.
CASE Category 39-Env Sci, NEC

NSG 50[illegible] **Old Dominion University** **3583**
Radiation investigations of optical and electronic components used in astronomical satellite studies
Period 02/17/75-05/31/78 *Obligations* FY77: $25,000 TOTAL: $177,747
Prin Invest Becher, J.; Kernell, R. L.
NASA Tech Officer GSFC/Kelsall, T. N.
CASE Category 19-Phys Sci, NEC

NAS 1-12754 **University of Virginia** **3584**
Research in the physical and life sciences
Period 10/26/73-10/26/76 *Obligations* FY77: $10,000 TOTAL: $208,505
Prin Invest Barnes, D. W.
NASA Tech Officer LARC/Martin, D. J.
CASE Category 99-Multi-Discip

NAS 1-14862 **University of Virginia** **3585**
Interactive software invocation system
Period 04/01/77-03/31/79 *Obligations* FY77: $96,558 TOTAL: $96,558
Prin Invest Berman, W. J.
NASA Tech Officer LARC/Will, R. W.; LARC/Straeter, T. A.
CASE Category 22-Computer Sci

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NAS 1-14908 **University of Virginia** **3586**
Air transportation systems research
Period *Obligations*
05/02/77-05/01/78 FY77: $42,408 TOTAL: $42,408
Prin Invest *NASA Tech Officer* *CASE Category*
Kuhlthau, A. R. LARC/Conner, D. W. 49-Engr, NEC
LARC/Brissenden, R. F.

NAS 5-20999 **University of Virginia** **3587**
Analysis of data for ERTS follow-on investigation
Period *Obligations*
04/03/75-01/02/78 FY77: $3,000 TOTAL: $90,442
Prin Invest *NASA Tech Officer* *CASE Category*
Dolan, R. GSFC/Oseroff, H. 39-Env Sci, NEC

NAS 5-22346 **University of Virginia** **3588**
Design and application of a one meter UV- optical telescope for spacelab astronomy missions
Period *Obligations*
04/29/75-09/30/77 FY77: $3,420 TOTAL: $22,924
Prin Invest *NASA Tech Officer* *CASE Category*
OConnell, R. W. GSFC/Stecher, T. P. 11-Astronomy

NAS 5-24218 **University of Virginia** **3589**
Research study on mixer diodes for submillimeter applications
Period *Obligations*
06/23/77-06/22/78 FY77: $11,750 TOTAL: $11,750
Prin Invest *NASA Tech Officer* *CASE Category*
Mattauch, R. J. GSFC/Lamb, G. M. 49-Engr, NEC
GSFC/Dargo, D. R.

NAS 8-31951 **University of Virginia** **3590**
Space shuttle main engine whirl problem
Period *Obligations*
04/19/76-11/30/77 FY77: $39,531 TOTAL: $151,329
Prin Invest *NASA Tech Officer* *CASE Category*
Gunter, E. J. MSFC/Goetz, O. K. 46-Mech Engr
Allaire, P. E. MSFC/Jewell, R. E.

NGL 47-005-066 **University of Virginia** **3591**
Studies in astronomy and related scientific and engineering fields
Period *Obligations*
10/10/66-09/14/77 FY77: TOTAL: $199,256
Prin Invest *NASA Tech Officer* *CASE Category*
Frederick, L. W. HQ-SA/Roman, N. G. 11-Astronomy
HQ-SA/Boggess, N. W.

NGR 47-005-172 **University of Virginia** **3592**
Interpretation of surface features and surface processes on Mars
Period *Obligations*
03/03/71-08/30/77 FY77: $10,187 TOTAL: $225,583
Prin Invest *NASA Tech Officer* *CASE Category*
Howard, A. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NGR 47-005-204 **University of Virginia** **3593**
Study of astromatic multiplexing area scanner for large space telescope
Period *Obligations*
07/01/75-06/30/76 FY77: TOTAL: $5,793
Prin Invest *NASA Tech Officer* *CASE Category*
Frederick, L. W. GSFC/Sobieski, S. 11-Astronomy
Rakosch, K. GSFC/Meese, K.

NGR 47-005-208 **University of Virginia** **3594**
Effects of aircraft design on STOL ride quality: A simulator study
Period *Obligations*
06/07/73-05/31/77 FY77: TOTAL: $102,738
Prin Invest *NASA Tech Officer* *CASE Category*
Jacobson, I. R. LARC/Lichtenstein, J. H. 41-Aero Engr
LARC/Queijo, M. J.

NGR 47-005-219 **University of Virginia** **3595**
Unsteady loads due to propulsive lift configurations
Period *Obligations*
01/01/74-12/31/77 FY77: $50,433 TOTAL: $180,203
Prin Invest *NASA Tech Officer* *CASE Category*
Haviland, J. K. LARC/Schoenster, J. A. 41-Aero Engr
Morton, J. B. LARC/Mixson, J. S.

NSG 1010 **University of Virginia** **3596**
Superconducting magnetic suspension and balance experiment
Period *Obligations*
03/01/74-01/31/78 FY77: $49,885 TOTAL: $268,585
Prin Invest *NASA Tech Officer* *CASE Category*
Zapata, R. N. LARC/Kilgore, R. A. 41-Aero Engr
Humphris, R. R.

NSG 1128 **University of Virginia** **3597**
Optimization of MLS receivers for multipath environments
Period *Obligations*
12/16/74-10/31/77 FY77: $57,000 TOTAL: $190,625
Prin Invest *NASA Tech Officer* *CASE Category*
McAlpine, G. A. LARC/Shultz, L. R. 45-Elec Engr
Highfill, J. H.

NSG 1180 **University of Virginia** **3598**
Interior aircraft cabin noise: Field study
Period *Obligations*
05/19/75-06/30/78 FY77: $45,578 TOTAL: $140,325
Prin Invest *NASA Tech Officer* *CASE Category*
Jacobson, I. D. LARC/Mayes, W. H. 41-Aero Engr
LARC/Cawthorn, J. M.

NSG 1256 **University of Virginia** **3599**
Interplanetary dust studies
Period *Obligations*
10/01/75-09/30/77 FY77: $9,704 TOTAL: $27,204
Prin Invest *NASA Tech Officer* *CASE Category*
Singer, S. F. LARC/Alvarez, J. M. 11-Astronomy

NSG 1274 **University of Virginia** **3600**
A system study of factors affecting acceptance of helicopter transportation

Period	Obligations	
01/15/76-05/31/77	FY77: $18,776	TOTAL: $51,700
Prin Invest	**NASA Tech Officer**	**CASE Category**
Jacobson, I. D.	LARC/Snyder, W. J.	49-Engr, NEC
Schoultz, M. B.	LARC/Tapscott, R. J.	

NSG 1335 **University of Virginia** **3601**
Investigation of numerical methods for use in real-time simulation

Period	Obligations	
10/01/76-05/31/78	FY77: $29,318	TOTAL: $29,318
Prin Invest	**NASA Tech Officer**	**CASE Category**
Brown, R. L., Jr.	LARC/Bowles, R. L.	21-Mathematics

NSG 1388 **University of Virginia** **3602**
Computation of minimum noise aircraft landing trajectories

Period	Obligations	
02/01/77-01/31/78	FY77: $34,314	TOTAL: $34,314
Prin Invest	**NASA Tech Officer**	**CASE Category**
Cook, G. E.	LARC/Hueschen, R. M.	49-Engr, NEC
	LARC/Walsh, T. M.	

NSG 1399 **University of Virginia** **3603**
A study of the instrument flight rules helicopter system

Period	Obligations	
03/01/77-02/28/78	FY77: $43,495	TOTAL: $43,495
Prin Invest	**NASA Tech Officer**	**CASE Category**
Jacobson, I. D.	LARC/Tapscott, R. J.	49-Engr, NEC
	LARC/Garren, J. F., Jr.	

NSG 1403 **University of Virginia** **3604**
The hardware and software aspects of real-time flight simulation

Period	Obligations	
03/01/77-02/28/78	FY77: $57,938	TOTAL: $57,938
Prin Invest	**NASA Tech Officer**	**CASE Category**
Parrish, E. A., Jr.	LARC/Barker, L. E.	22-Computer Sci
Cook, G. E.	LARC/Bowles, R. L.	
McVey, E. S.		

NSG 1406 **University of Virginia** **3605**
Stability of electrode systems for electrochemical coliform detectors

Period	Obligations	
03/07/77-03/06/78	FY77: $15,971	TOTAL: $15,971
Prin Invest	**NASA Tech Officer**	**CASE Category**
Stoner, G. E.	LARC/Wilkins, J. R.	49-Engr, NEC
	LARC/Grana, D. C.	

NSG 1427 **University of Virginia** **3606**
Studies of the interplanetary particulate environment

Period	Obligations	
07/01/77-09/30/78	FY77: $18,150	TOTAL: $18,150
Prin Invest	**NASA Tech Officer**	**CASE Category**
Singer, S. F.	LARC/Humes, D. H.	11-Astronomy
Stanley, J. E.		

NSG 2225 **University of Virginia** **3607**
Mammalian body size, composition and growth as influenced by hypokinesia

Period	Obligations	
04/01/77-03/31/78	FY77: $25,000	TOTAL: $25,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Pitts, G. C.	ARC/Holton, E. M.	51-Biology

NSG 3104 **University of Virginia** **3608**
Investigation of rotor transient analysis by the modal method

Period	Obligations	
09/01/76-08/31/77	FY77:	TOTAL: $30,609
Prin Invest	**NASA Tech Officer**	**CASE Category**
Gunter, E. J.	LERC/Cunningham, R. E.	46-Mech Engr
Allaire, P. E.	LERC/Fleming, D. P.	
Rrett, B. A.		

NSG 7266 **University of Virginia** **3609**
Demand modeling and its effect on the design and operation of transport aircraft

Period	Obligations	
10/01/76-09/30/77	FY77: $60,000	TOTAL: $60,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Kuhlthau, A. R.	HQ-RX/Rollins, R. H	72-Economics
Jacobson, I. D.	LARC/Conner, D. W.	

NSG 7364 **University of Virginia** **3610**
Observation of the satellites of the other planets

Period	Obligations	
07/01/77-06/30/78	FY77: $19,636	TOTAL: $19,636
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ianna, P. A.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Quaide, W. L.	

NGL 47-002-005 **Virginia Commonwealth University** **3611**
Radiation hazards to the eye

Period	Obligations	
06/25/65-04/30/77	FY77:	TOTAL: $488,317
Prin Invest	**NASA Tech Officer**	**CASE Category**
Ham, W. T.	HQ-SB/Saunders, J. F.	51-Biology
	HQ-SB/Jones, W. L.	

NGL 47-002-020 **Virginia Commonwealth University** **3612**
Microbiological performance testing on water management subsystem for a four man space capsule

Period	Obligations	
04/23/68-05/31/78	FY77:	TOTAL: $252,162
Prin Invest	**NASA Tech Officer**	**CASE Category**
Dalton, H. P.	LARC/Wilkins, J. R.	51-Biology

NGR 47-002-041 **Virginia Commonwealth University** **3613**
Isomer effects on polyimide properties

Period	Obligations	
10/11/72-03/31/78	FY77: $21,000	TOTAL: $78,355
Prin Invest	**NASA Tech Officer**	**CASE Category**
Stump, B. L.	LARC/Bell, V. L.	12-Chemistry

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NSG 7355 **Virginia Military Institute** **3614**
Oxidation-reduction processes in synthetic silicate melts
Period 06/01/77-01/31/79 *Obligations* FY77: $34,907 TOTAL: $34,907
Prin. Invest. Schreiber, H. D.
NASA Tech. Officer HQ-SL/Goldstein, B. E.; HQ-SL/Quaide, W. L.
CASE Category 32-Geological Sci

NAS 1-13175 **Virginia Polytechnic Institute** **3615**
Research in the physical and life sciences
Period 05/10/74-05/10/77 *Obligations* FY77: $24,530 TOTAL: $249,253
Prin. Invest. Robertson, R. M.
NASA Tech. Officer LARC/Martin, D. J.
CASE Category 49-Engr, NEC

NAS 1-13884 **Virginia Polytechnic Institute** **3616**
Study of theory of acoustical propagation through high subsonic Mach numoer duct construction
Period 04/25/75-09/25/77 *Obligations* FY77: TOTAL: $95,660
Prin Invest. Nayfeh, A. H.
NASA Tech Officer LARC/Posey, J.
CASE Category 13-Physics

NAS 1-15080 **Virginia Polytechnic Institute** **3617**
Research in the area of physical sciences
Period 08/25/77-08/24/78 *Obligations* FY77: $2,940 TOTAL: $2,940
Prin Invest Unavailable
NASA Tech Officer LARC/Anderson, A. F.; LARC, Royall, J. F.
CASE Category 99-Multi-Discip

NAS 5-22577 **Virginia Polytechnic Institute** **3618**
Communications link characterization study
Period 09/08/76-08/01/78 *Obligations* FY77: $129,990 TOTAL: $299,990
Prin Invest Bostian, C. W.
NASA Tech Officer GSFC/Hirschmann, E.
CASE Category 45-Elec Engr

NAS 6-2388 **Virginia Polytechnic Institute** **3619**
Remote sensing in agriculture
Period 11/01/73-09/30/78 *Obligations* FY77: $162,117 TOTAL: $370,527
Prin Invest Pettry, D. E.
NASA Tech Officer WFC/Scott, J. H.
CASE Category 39-Env Sci, NEC

NAS 9-15091 **Virginia Polytechnic Institute** **3620**
Dynamic math model of dc motor for aerospace applications
Period 09/01/76-01/31/78 *Obligations* FY77: TOTAL: $23,978
Prin Invest Demerdash, N. A.
NASA Tech Officer JSC/Edge, J. T.
CASE Category 45-Elec Engr

NAS 9-15287 **Virginia Polytechnic Institute** **3621**
Development of a stereofluoroscopy system
Period 06/01/77-05/31/78 *Obligations* FY77: $35,000 TOTAL: $35,000
Prin. Invest. Rivers, D. B.
NASA Tech Officer JSC/Day, J. L.
CASE Category 52-Clinical Med

NGL 47-004-067 **Virginia Polytechnic Institute** **3622**
Measurement of the ground wind structure
Period 06/15/70-09/30/77 *Obligations* FY77: $50,000 TOTAL: $473,010
Prin Invest Tieleman, H. W.
NASA Tech Officer WFC/Carr, R. E.
CASE Category 31-Atmos Sci

NGL 47-004-080 **Virginia Polytechnic Institute** **3623**
Synthesis, energetics, and chemical characterization of unusual molecules of interest in astronomy at temperatures below 100 K
Period 04/19/71-06/30/76 *Obligations* FY77: TOTAL: $61,960
Prin. Invest McGee, H. A.
NASA Tech Officer HQ-SL/Fellows, R. F.
CASE Category 11-Astronomy

NGR 47-004-090 **Virginia Polytechnic Institute** **3624**
Research program in aeronautics & air transportation systems
Period 06/25/71-06/30/78 *Obligations* FY77: $100,000 TOTAL: $589,000
Prin Invest Drew, D. R.
NASA Tech Officer LARC/Duberg, J. E.; LARC/Erickson, W. D.
CASE Category 41-Aero Engr

NGR 47-004-114 **Virginia Polytechnic Institute** **3625**
Crash safety of general aviation aircraft
Period 09/19/72-05/31/77 *Obligations* FY77: $11,147 TOTAL: $173,982
Prin Invest Kamat, M. P.
NASA Tech Officer LARC/Hayduk, R. J.; LARC/Thomson, R. G.
CASE Category 44-Civil Engr

NGR 47-004-129 **Virginia Polytechnic Institute** **3626**
Composite materials research and education
Period 01/01/74-08/31/78 *Obligations* FY77: $172,978 TOTAL: $386,564
Prin Invest Herakovich, C. T.
NASA Tech Officer LARC/Davis, J. G., Jr.; LARC/Pride, R. A.
CASE Category 49-Engr, NEC

NSG 1015 **Virginia Polytechnic Institute** **3627**
Self reorganizing flight control systems geometric formulation
Period 03/06/74-01/31/77 *Obligations* FY77: TOTAL: $41,265
Prin Invest Cliff, E. M.
NASA Tech Officer LARC/Montgomery, R. C.
CASE Category 41-Aero Engr

NSG 1020 **Virginia Polytechnic Institute** **3628**
Determining ion kinetic energies by a method of mass spectrometer peak-shape variation

Period	Obligations	
07/01/74-12/31/77	FY77:	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Sanzone, G.	LARC/Smith, A.	13-Physics

NSG 1024 **Virginia Polytechnic Institute** **3629**
Photoelastic determination of stress intensity factors for cracks emanating from fastener loaded holes

Period	Obligations	
09/15/74-09/14/77	FY77:	TOTAL: $48,828
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, C. W.	LARC/Newman, J. C., Jr.	41-Aero Engr
	LARC/Crews, J. H., Jr.	

NSG 1064 **Virginia Polytechnic Institute** **3630**
Synthesis and polymerization of aromatic secondary diamines

Period	Obligations	
06/01/74-10/31/77	FY77:	TOTAL: $43,173
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wolfe, J. F.	LARC/Johnston, N. J.	12-Chemistry
	LARC/Bell, V. L.	

NSG 1085 **Virginia Polytechnic Institute** **3631**
Kinetics of the reactions of acid anhydrides with aromatic amines in aprotic solvents

Period	Obligations	
07/01/74-04/30/78	FY77: $30,963	TOTAL: $93,519
Prin Invest	*NASA Tech Officer*	*CASE Category*
Mason, J. G.	LARC/Young, P. R.	12-Chemistry

NSG 1114 **Virginia Polytechnic Institute** **3632**
Structural dynamics, stability and control of helicopters

Period	Obligations	
10/08/74-10/31/77	FY77: $41,230	TOTAL: $114,985
Prin Invest	*NASA Tech Officer*	*CASE Category*
Meirovitch, L.	LARC/Kvaternik, R. G.	41-Aero Engr
	LARC/Hammond, C. E.	

NSG 1124 **Virginia Polytechnic Institute** **3633**
A fundamental approach to adhesion: Synthesis, surface analysis, thermodynamics and mechanics

Period	Obligations	
12/01/74-11/30/77	FY77: $79,918	TOTAL: $203,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wightman, J. P.	LARC/Progar, D. J.	12-Chemistry
	LARC/Price, H. L.	

NSG 1214 **Virginia Polytechnic Institute** **3634**
Fiber reinforcement and surface protection of selected titanium alloys

Period	Obligations	
07/01/75-10/31/77	FY77:	TOTAL: $104,237
Prin Invest	*NASA Tech Officer*	*CASE Category*
Houska, C. R.	LARC/Tenney, D. R.	47-Materials Engr

NSG 1230 **Virginia Polytechnic Institute** **3635**
Microbiological experiments for the long duration exposure facility--space shuttle missions

Period	Obligations	
09/15/75-03/14/77	FY77:	TOTAL: $11,766
Prin Invest	*NASA Tech Officer*	*CASE Category*
Drew, S. W.	LARC/ONeal, R. L.	43-Chem Engr
Rony, P. R.	LARC/Kinard, W. H.	

NSG 1238 **Virginia Polytechnic Institute** **3636**
Signature analysis of acoustic emissions from composites

Period	Obligations	
10/01/75-03/31/78	FY77: $20,769	TOTAL: $40,729
Prin Invest	*NASA Tech Officer*	*CASE Category*
Henneke, E. G.	LARC/Wichorek, G. R.	49-Engr, NEC
Herakovich, C. T.	LARC/Pride, R. A.	

NSG 1239 **Virginia Polytechnic Institute** **3637**
Aircraft adaptive learning control systems

Period	Obligations	
09/15/75-10/14/78	FY77: $35,282	TOTAL: $51,100
Prin Invest	*NASA Tech Officer*	*CASE Category*
VanLandingham, H.F.	LARC/Montgomery, R. C.	41-Aero Engr

NSG 1250 **Virginia Polytechnic Institute** **3638**
High temperature composite materials for aerospace structures research

Period	Obligations	
10/01/75-09/30/78	FY77: $25,298	TOTAL: $65,562
Prin Invest	*NASA Tech Officer*	*CASE Category*
Herakovich, C. T.	LARC/Hoffman, E. L.	49-Engr, NEC
Hodges, W. T.	LARC/Davis, J. G., Jr.	

NSG 1254 **Virginia Polytechnic Institute** **3639**
Short beam shear tests of polymeric laminates and unidirectional composites

Period	Obligations	
10/01/75-09/30/78	FY77: $20,000	TOTAL: $59,994
Prin Invest	*NASA Tech Officer*	*CASE Category*
Stinchcomb, W. W.	LARC/Hoffman, E. L.	46-Mech Engr
Henneke, E. G.	LARC/Deaton, J. W.	

NSG 1255 **Virginia Polytechnic Institute** **3640**
Application of stability theory to laminar flow control

Period	Obligations	
10/01/75-10/31/77	FY77: $60,000	TOTAL: $120,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nayfeh, A. H.	LARC/Hefner, J. N.	41-Aero Engr
Saric, W. S.		

NSG 1262 **Virginia Polytechnic Institute** **3641**
Steady vortex lattice technique development

Period	Obligations	
12/01/75-01/31/78	FY77: $32,000	TOTAL: $47,041
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nayfeh, A. H.	LARC/Yates, E. C., Jr.	41-Aero Engr
Mook, D. T.	LARC/Young, W. H., Jr.	
Kandil, O. A.		

NSG 1275 **Virginia Polytechnic Institute** **3642**
An analytic study of a laminar diffusion flame
Period 01/15/76-04/30/78 *Obligations* FY77: $12,614 TOTAL: $23,043
Prin. Invest Frair, K. L. *NASA Tech. Officer* LARC/Maahs, H. G. *CASE Category* 19-Phys Sci, NEC

NSG 1276 **Virginia Polytechnic Institute** **3643**
A study of multiple-shaker modal survey testing
Period 02/15/76-05/14/78 *Obligations* FY77: $27,009 TOTAL: $51,958
Prin. Invest Hallauer, W. L., Jr. *NASA Tech Officer* LARC/Miserentino, R. *CASE Category* 49-Engr, NEC

NSG 1286 **Virginia Polytechnic Institute** **3644**
Research in acetylene containing monomers
Period 03/01/76-05/31/77 *Obligations* FY77: TOTAL: $23,600
Prin Invest Ogliaruso, M. A. *NASA Tech. Officer* LARC/StClair, T. L. LARC/Johnston, N. J. *CASE Category* 12-Chemistry

NSG 1354 **Virginia Polytechnic Institute** **3645**
Study of an automatic trajectory following control system
Period 10/15/76-10/14/77 *Obligations* FY77: $27,382 TOTAL: $27,382
Prin Invest VanLandingham, H.F. Moose, R. L. *NASA Tech Officer* LARC/Creedon, J. F. LARC/Hueschen, R. M. *CASE Category* 41-Aero Engr

NSG 1358 **Virginia Polytechnic Institute** **3646**
Experiments on the stability and transition of two-dimensional and three-dimensional boundary layers with suction
Period 12/01/76-11/30/77 *Obligations* FY77: $77,000 TOTAL: $77,000
Prin Invest Saric, W. S. Nayfeh, A. H. *NASA Tech Officer* LARC/Hefner, J. N. LARC/Bushnell, D. M. *CASE Category* 41-Aero Engr

NSG 1364 **Virginia Polytechnic Institute** **3647**
Investigation and characterization of constraint effects on flaw growth during fatigue loading of composite materials
Period 12/01/76-11/30/77 *Obligations* FY77: $55,198 TOTAL: $55,198
Prin Invest Reifsnider, K. L. Stinchomb, W. W. *NASA Tech. Officer* LARC/Whitcomb, J. D. LARC/Roderick, G. L. *CASE Category* 47-Materials Engr

NSG 1376 **Virginia Polytechnic Institute** **3648**
Regression in the presence of correlated errors
Period 01/01/77-12/31/77 *Obligations* FY77: $14,663 TOTAL: $14,663
Prin Invest Myers, R. H. Reynolds, M. R., Jr. *NASA Tech Officer* LARC/Campbell, J. W. *CASE Category* 21-Mathematics

NSG 1382 **Virginia Polytechnic Institute** **3649**
Fault tree analysis of tensile failure of fiberous composites
Period 02/01/77-01/31/78 *Obligations* FY77: $12,660 TOTAL: $12,660
Prin. Invest. Louthan, M. R., Jr. *NASA Tech. Officer* LARC/Tenney, D. R. *CASE Category* 47-Materials Engr

NSG 1389 **Virginia Polytechnic Institute** **3650**
Interaction of chlorine and hydrogen chloride with alumina, asbestos, and silica
Period 02/14/77-02/13/78 *Obligations* FY77: $19,764 TOTAL: $19,764
Prin Invest Wightman, J. P. *NASA Tech Officer* LARC/Pellett, G. L. *CASE Category* 12-Chemistry

NSG 1428 **Virginia Polytechnic Institute** **3651**
The incorporation of metal ions polyimides
Period 07/01/77-06/30/78 *Obligations* FY77: $47,367 TOTAL: $47,367
Prin Invest Taylor, L. T. *NASA Tech. Officer* LARC/Slemp, W. S. LARC/StClair, T. L. *CASE Category* 12-Chemistry

NSG 2038 **Virginia Polytechnic Institute** **3652**
Fundamental investigation of failure of fiber composites
Period 10/01/74-09/30/78 *Obligations* FY77: $164,205 TOTAL: $316,905
Prin Invest Brinson, H. F. *NASA Tech Officer* ARC/Nelson, H. G. *CASE Category* 47-Materials Engr

NSG 3073 **Virginia Polytechnic Institute** **3653**
Studies of internal flowfields of high throat-Mach number quiet engine inlets
Period 10/01/75-03/31/78 *Obligations* FY77: TOTAL: $30,005
Prin Invest Jakubowski, A. K. *NASA Tech Officer* LERC/Shaw, R. J. *CASE Category* 41-Aero Engr

NGL 47-014-009 **Virginia State College** **3654**
Numerical treatment of sound propagation through a duct
Period 06/29/73-08/31/77 *Obligations* FY77: TOTAL: $7 342
Prin Invest Agrawal, K. M. *NASA Tech Officer* LARC/Lansing, D. L. *CASE Category* 41-Aero Engr

NSG 1342 **Virginia State College** **3655**
Material science and solid state physics studies with positive muon spin precession
Period 01/01/77-12/31/78 *Obligations* FY77: $33,521 TOTAL: $33,521
Prin Invest Stronach, C. E. *NASA Tech Officer* LARC/Singh, J. J. *CASE Category* 13-Physics

WASHINGTON

NAS 1-9694 **University of Washington** **3656**
Participation in the science planning for the Viking 1975 missions in the area of meteorology

Period	Obligations	
04/27/70-09/30/78	FY77: $115,092	TOTAL: $515,059
Prin Invest	**NASA Tech Officer**	**CASE Category**
Leovy, C. B.	LARC/Williams, T. S., Jr.	31-Atmos Sci
	LARC/Glenny, W. R.	

NAS 1-14341 **University of Washington** **3657**
Science support for the limb infrared monitor of the stratosphere experiment

Period	Obligations	
04/12/76-10/31/78	FY77: $17,000	TOTAL: $27,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Leovy, C. B.	LARC/Russell, J. M., III	31-Atmos Sci
	LARC/James, R. L., Jr.	

NAS 2-9536 **University of Washington** **3658**
Study of biological and ecological effects of energy transmission by microwaves

Period	Obligations	
03/15/77-12/15/77	FY77: $23,000	TOTAL: $23,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Guy, A. W.	ARC/Johnson, R. D.	51-Biology

NAS 5-22379 **University of Washington** **3659**
Study of the HR diagram to find the boundary line for effective hydrogen convection zones

Period	Obligations	
04/09/75-12/31/77	FY77:	TOTAL: $29,566
Prin Invest	**NASA Tech Officer**	**CASE Category**
Bohm-Vitense, E.	GSFC/Brandt, J. C.	11-Astronomy

NAS 9-13029 **University of Washington** **3660**
Total body calcium analysis

Period	Obligations	
06/29/72-11/30/77	FY77: $50,000	TOTAL: $302,485
Prin Invest	**NASA Tech Officer**	**CASE Category**
Nelp, W. B.	JSC/Rambaut, P. C.	59-Life Sci, NEC

NAS 9-13743 **University of Washington** **3661**
Scanning electron microscope analysis

Period	Obligations	
11/21/73-04/30/78	FY77: $5,000	TOTAL: $21,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Brownlee, D. E.	JSC/Horz, F.	32-Geological Sci

NCA 2-850701 **University of Washington** **3662**
An analysis of Pacific Northwest State and local agencies' operational requirements for an earth resources data management facility

Period	Obligations	
11/08/76-11/07/77	FY77: $20,000	TOTAL: $20,000
Prin Invest	**NASA Tech Officer**	**CASE Category**
Westerlund, F. V.	ARC/Lumb, D. R.	39-Env Sci, NEC
	ARC/Wilson, D. E.	

NGL 48-002-004 **University of Washington** **3663**
Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials

Period	Obligations	
06/2[illegible]/73-05/31/80	FY77: $400,001	TOTAL: $3,669,171
Prin Invest	**NASA Tech Officer**	**CASE Category**
Mueller, J. I.	HQ-RW/Gangler, J. J.	47-Materials Engr
	HQ-RW/Deutsch, G. C.	

NGL 48-002-010 **University of Washington** **3664**
Experimental and theoretical investigation of wind tunnel geometry, ephasizing factors pertinent to V/STOL vehicle testing

Period	Obligations	
10/30/64-09/14/77	FY77:	TOTAL: $382,820
Prin Invest	**NASA Tech Officer**	**CASE Category**
Joppa, R. G.	LARC/Heyson, H. H.	41-Aero Engr

NGL 48-002-035 **University of Washington** **3665**
An experimental investigation of wind tunnel test limits for V/STOL type vehicles in wind tunnels with curved walls

Period	Obligations	
08/19/66-06/30/78	FY77:	TOTAL: $185,428
Prin Invest	**NASA Tech Officer**	**CASE Category**
Rae, W. H.	LARC/Peyson, H. H.	41-Aero Engr

NGL 48-002-044 **University of Washington** **3666**
Generation of coherent radiation and the use of intense coherent radiation for generation of plasmas

Period	Obligations	
05/19/67-11/14/77	FY77:	TOTAL: $687,900
Prin Invest	**NASA Tech Officer**	**CASE Category**
Hertzberg, A.	HQ-RR/Thom, K.	13-Physics
	ARC/Billman, K. W	

NGL 48-002-047 **University of Washington** **3667**
Interaction shock wave and turbulent boundary layer

Period	Obligations	
09/16/67-06/30/80	FY77: $22,000	TOTAL: $419,659
Prin Invest	**NASA Tech Officer**	**CASE Category**
Childs, M. E.	ARC/Rose, W. C.	41-Aero Engr
	ARC/Chapman, G.	

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NGR 48-002-033 University of Washington 3668
Study of interplanetary dust

Period	Obligations	
10/17/66-02/28/77	FY77: $8,971	TOTAL: $338,128
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Hodge, P. W.	HQ-SL/French, B. M.	11-Astronomy
Brownlee, D. E.	HQ-SL/Quaide, W. L.	

NGR 48-002-107 University of Washington 3669
High Reynolds numbers flows

Period	Obligations	
01/28/71-01/31/78	FY77: $27,884	TOTAL: $301,263
Prin. Invest	*NASA Tech. Officer*	*CASE Category*
Russell, D. A.	ARC/Steinle, F. W., Jr.	41-Aero Engr

NGR 48-002-141 University of Washington 3670
Research program in aeronautics & air transportation

Period	Obligations	
05/10/72-01/31/79	FY77:	TOTAL: $273,485
Prin. Invest	*NASA Tech. Officer*	*CASE Category*
Cnilds, M. E.	ARC/Rose, W. C.	41-Aero Engr
Gessner, F. B.	ARC/Watson, E. C.	

NGR 48-002-142 University of Washington 3671
Analysis of continuum channel light curves

Period	Obligations	
10/03/72-12/31/77	FY77: $32,732	TOTAL: $107,031
Prin Invest	*NASA Tech Officer*	*CASE Category*
Greene, T. F.	HQ-SL/Brunk, W. E.	11-Astronomy
	HQ-SL/Fellows, R. F.	

NGR 48-002-153 University of Washington 3672
Classification and mapping of planetary soils

Period	Obligations	
02/12/73-10/31/75	FY77:	TOTAL: $3,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Vgolihi, F. C.	HQ-SL/Dwornik, S. E.	32-Geological Sci

NGR 48-002-154 University of Washington 3673
Study of physical conditions in interplanetary and magnetospheric regions

Period	Obligations	
08/01/73-09/30/76	FY77:	TOTAL: $44,017
Prin Invest	*NASA Tech. Officer*	*CASE Category*
Parks, G. K.	HQ-ST/Cauffman, D. P.	13-Physics

NSG 2131 University of Washington 3674
Collect and analyze meteor debris from the stratosphere

Period	Obligations	
03/01/76-12/31/77	FY77: $8,719	TOTAL: $20,219
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hodge, P. W.	ARC/Blanchard, W. B.	
Brownlee, D. E	ARC/Farlow, N. H.	19-Phys Sci, NEC
Blanchard, M. B.		

NSG 2176 University of Washington 3675
Wind shear detection by total energy method for use in landing of aircraft

Period	Obligations	
10/01/76-09/30/78	FY77: $37,500	TOTAL: $75,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Joppa, R. G.	ARC/Smith, D. W.	41-Aero Engr

NSG 2228 University of Washington 3676
Stratospheric planetary waves

Period	Obligations	
08/01/77-07/31/78	FY77: $98,813	TOTAL: $98,813
Prin. Invest	*NASA Tech. Officer*	*CASE Category*
Holton, J. R.	ARC/Young, R. E.	31-Atmos Sci
Leovy, C. B.		

NSG 3152 University of Washington 3677
A design manual for stirling engines

Period	Obligations	
06/01/77-11/30/77	FY77: $39,513	TOTAL: $39,513
Prin Invest	*NASA Tech. Officer*	*CASE Category*
Martini, W. R.	LERC/Valentine, H. H.	46-Mech Engr
	LERC/Tew, R. C.	

NSG 5039 University of Washington 3678
Stratospheric long waves

Period	Obligations	
12/01/74-09/30/77	FY77: $30,000	TOTAL: $84,991
Prin. Invest	*NASA Tech Officer*	*CASE Category*
Leovy, C. B.	GSFC/Eberstein, I.	31-Atmos Sci
Webster, P. J.		

NSG 5142 University of Washington 3679
The kinematics and ionization of the gum nebula

Period	Obligations	
12/01/76-11/30/77	FY77: $1,310	TOTAL: $1,310
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wallerstein, G.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7085 University of Washington 3680
Dynamics of planetary atmospheres

Period	Obligations	
07/01/74-10/01/78	FY77: $66,976	TOTAL: $143,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Leovy, C. B.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

NSG 7173 University of Washington 3681
Application of spectral reflectance of lunar samples to telescopic spectra of unvisited parts of the moon

Period	Obligations	
07/01/75-01/31/80	FY77: $42,084	TOTAL: $123,032
Prin Invest	*NASA Tech Officer*	*CASE Category*
Adams, J. B.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

WASHINGTON (Continued)

NSG 7174 **University of Washington** **3682**
Visible and near-infrared reflectance spectroscopy

Period	Obligations	
07/01/75-01/31/79	FY77: $2,006	TOTAL: $128,654
Prin Invest	*NASA Tech Officer*	*CASE Category*
Adams, J. B.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7313 **University of Washington** **3683**
Crystal-liquid distribution coefficients for selected elements

Period	Obligations	
03/01/77-02/28/78	FY77: $28,655	TOTAL: $28,655
Prin Invest	*NASA Tech Officer*	*CASE Category*
McCallum, I. S.	HQ-SL/Goldstein, B. E.	
	HQ-SL/Quaide, W. L.	32-Geological Sci

NSG 7318 **University of Washington** **3684**
Analysis of data on very high energy galactic electrons

Period	Obligations	
12/01/76-11/30/77	FY77: $13,161	TOTAL: $13,161
Prin Invest	*NASA Tech Officer*	*CASE Category*
Lord, J. J	HQ-SA/Sofia, S.	11-Astronomy
	HQ-SA/Opp, A. G.	

NSG 9032 **University of Washington** **3685**
Reflectance spectroscopy of lunar samples

Period	Obligations	
07/01/75-01/31/78	FY77: $62,000	TOTAL: $179,430
Prin Invest	*NASA Tech Officer*	*CASE Category*
Adams, J. D	JSC/Harris, J. W.	32-Geological Sci

NSG 9052 **University of Washington** **3686**
A study of interplanetary dust

Period	Obligations	
03/01/77-02/28/78	FY77: $75,000	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Brownlee, D. E.	JSC/Harris, J. W.	31-Atmos Sci

NAS 8-29725 **Washington State University** **3687**
Solidification of binary alloys exhibiting solid state immiscibility under zero gravity conditions

Period	Obligations	
04/17/73-10/31/75	FY77: $7,000	TOTAL: $77,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Johnson, A. A.	MSFC/Yates, I. C., Jr.	
Anantatmula, R. P.	MSFC/Lacy, L. L.	47-Materials Engr

NCA 2-840701 **Washington State University** **3688**
Surface chemistry of small metal particles

Period	Obligations	
10/01/76-01/15/78	FY77: $9,000	TOTAL: $9,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dickinson, J. T.	ARC/Poppa, H. R.	12-Chemistry

NSG 7214 **Washington State University** **3689**
Atmospheric measurements of nitrous oxide and the halocarbons

Period	Obligations	
02/01/76-02/28/78	FY77: $72,896	TOTAL: $172,168
Prin Invest	*NASA Tech Officer*	*CASE Category*
Rasmussen, R. A.	HQ-SU/Seals, R. K., Jr.	31-Atmos Sci
Pierotti, D	ARC/Page, W. A.	

WEST VIRGINIA

NSG 7089 **West Virginia Col. Grad. Studies** **3690**
Economic analysis and NASA technology program planning

Period	Obligations	
08/31/74-09/30/77	FY77:	TOTAL: $98,004
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cobb, W. E.	HQ-RX/Rollins, R. H.	75-Political Sci
	HQ-RX/Johnson, P. G.	

NAS 3-19725 **West Virginia University** **3691**
Development of a fluidized bed computer model

Period	Obligations	
06/23/75-02/13/77	FY77: $620	TOTAL: $74,129
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wen, C. Y.	LERC/Phillips, B. R.	49-Engr, NEC

NSG 1412 **West Virginia University** **3692**
Generalization of analytical tools for helicopter rotor airfoils

Period	Obligations	
04/15/77-04/14/78	FY77: $20,466	TOTAL: $20,466
Prin Invest	*NASA Tech Officer*	*CASE Category*
Gibbs, E. H.	LARC/Morris, C. E., Jr.	41-Aero Engr

NSG 3134 **West Virginia University** **3693**
Development of a fluidized bed computer model

Period	Obligations	
12/01/76-05/31/78	FY77: $53,300	TOTAL: $53,300
Prin Invest	*NASA Tech Officer*	*CASE Category*
Wen, C. Y.	LERC/Phillips, B. R.	43-Chem Engr

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NAS 1-14136 **University of Wisconsin - Madison** **3694**
Laser radar for meteorological measurements

Period	Obligations	
09/11/75-09/10/78	FY77: $265,000	TOTAL: $540,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinman, J. A.	LARC/Northam, G. B.	31-Atmos Sci
Parent, R. J.	LARC/Remsberg, E.	
Roesler, F. L.		

NAS 2-8813 **University of Wisconsin - Madison** **3695**
Design and development of the Pioneer/Venus net flux radiometer

Period	*Obligations*	
05/10/75-08/31/78	FY77: $240,000	TOTAL: $840,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	ARC/Hall, C. F.	31-Atmos Sci
Sromovsky, L. A.	ARC/Twarowski, R. J.	

NAS 2-9480 **University of Wisconsin - Madison** **3696**
Pioneer/Venus data analysis of net flux radiometer experiment

Period	*Obligations*	
09/27/77-11/30/78	FY77: $45,000	TOTAL: $45,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	ARC/Hall, C.	31-Atmos Sci

NAS 5-20974 **University of Wisconsin - Madison** **3697**
Navigation model for ATS satellites

Period	*Obligations*	
03/18/75-11/30/77	FY77: $20,000	TOTAL: $89,790
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Squires, R. K.	13-Physics
Kuhlow, W. W.		

NAS 5-21798 **University of Wisconsin - Madison** **3698**
Studies of soundings and imaging measurements from geostationary satellites

Period	*Obligations*	
08/01/72-09/30/77	FY77: $15,688	TOTAL: $346,909
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Theon, J. S.	31-Atmos Sci

NAS 5-21965 **University of Wisconsin - Madison** **3699**
Development of an IR temperature sounder for SMS spacecraft

Period	*Obligations*	
08/01/73-09/30/77	FY77: $249,509	TOTAL: $493,603
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Montgomery, A.	31-Atmos Sci

NAS 5-22349 **University of Wisconsin - Madison** **3700**
High resolution spectroscopy for a one meter class UV-optical telescope for spacelab astronomy missions

Period	*Obligations*	
04/23/75-12/31/77	FY77:	TOTAL: $13,247
Prin Invest	*NASA Tech Officer*	*CASE Category*
Anderson, C. M.	GSFC/Stecher, T. P.	11-Astronomy

NAS 5-22410 **University of Wisconsin - Madison** **3701**
Reduction and analysis of data from OSO-1 soft X-ray background experiment

Period	*Obligations*	
06/26/75-09/30/79	FY77: $101,000	TOTAL: $512,875
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kraushaar, W. L.	GSFC/Gemmell, J.	31-Atmos Sci

NAS 5-23285 **University of Wisconsin - Madison** **3702**
Operation and data handling requirements for large space telescope

Period	*Obligations*	
09/07/73-12/31/76	FY77:	TOTAL: $56,292
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bless, R. C.	GSFC/Sobieski, S.	11-Astronomy
	GSFC/Meese, K. J.	

NAS 5-23462 **University of Wisconsin - Madison** **3703**
Global atmospheric research project

Period	*Obligations*	
06/07/76-03/28/79	FY77: $83,000	TOTAL: $123,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Greaves, J. R.	31-Atmos Sci

NAS 5-23500 **University of Wisconsin - Madison** **3704**
Continued operation of a biomedical applications team

Period	*Obligations*	
06/21/76-02/25/78	FY77: $175,000	TOTAL: $263,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Houston, N.	GSFC/Friedman, D. S.	53-Other Medical
Renner, J. H.		

NAS 5-23706 **University of Wisconsin - Madison** **3705**
Study of the economic benefits of meteorological satellite data

Period	*Obligations*	
08/30/76-08/29/80	FY77: $145,912	TOTAL: $246,912
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Hasler, A. F.	31-Atmos Sci
Suchman, D.	GSFC/Shenk, W. E	

NAS 5-23748 **University of Wisconsin - Madison** **3706**
Ultraviolet spectrophotometer/polarimeters experiment study

Period	*Obligations*	
07/29/76-08/31/77	FY77: $43,913	TOTAL: $43,913
Prin Invest	*NASA Tech Officer*	*CASE Category*
Code, A. D.	GSFC/Hibbard, W	11-Astronomy

NAS 5-24136 **University of Wisconsin - Madison** **3707**
Studies of soundings and imaging measurements from geostationary satellites

Period	*Obligations*	
06/07/77-01/06/78	FY77: $20,000	TOTAL: $20,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Theon, J. S.	31-Atmos Sci
	GSFC/Bandeen, W. R.	

NAS 5-24230 **University of Wisconsin - Madison** **3708**
Remotely monitor precipitation by analyzing data from Nimbus scanning microwave radiometers

Period	*Obligations*	
07/29/77-07/28/78	FY77: $30,000	TOTAL: $30,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Weinman, J. A.	GSFC/Theon, J. S.	31-Atmos Sci

NAS 8-29387 **University of Wisconsin - Madison** **3709**
Studies associated with large space telescope working group

Period	Obligations	
07/15/73-07/31/76	FY77:	TOTAL: $3,467
Prin Invest	*NASA Tech Officer*	*CASE Category*
Code, A. D.	MSFC/Odell, C. R.	11-Astronomy
	MSFC/Snoddy, W. C.	

NASW 2819 **University of Wisconsin - Madison** **3710**
Operation of a biomedical applications team

Period	Obligations	
07/01/75-06/30/76	FY77:	TOTAL: $174,998
Prin Invest	*NASA Tech Officer*	*CASE Category*
Huston, N.	HQ-KT/OHandley, D. A.	
Renner, J. H.		59-Life Sci, NEC

NCA 2-865701 **University of Wisconsin - Madison** **3711**
Influence of hypodynamia on the serum levels and production of the active metabolites of vitamin D in the rat

Period	Obligations	
08/01/76-07/31/78	FY77: $16,000	TOTAL: $32,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Deluca, H.	ARC/Holton, E. M.	51-Biology

NGL 50-002-013 **University of Wisconsin - Madison** **3712**
Investigations and studies of ultraviolet stellar spectra and associated instrumentation

Period	Obligations	
05/20/64-04/30/80	FY77: $210,000	TOTAL: $2,545,420
Prin Invest	*NASA Tech Officer*	*CASE Category*
Code, A. D.	GSFC/Bissell, E. E	11-Astronomy
	HQ-SA/Roman, N. G.	

NGL 50-002-044 **University of Wisconsin - Madison** **3713**
Research in cosmic and solar physics

Period	Obligations	
10/25/65-04/30/80	FY77: $184,965	TOTAL: $1,992,626
Prin Invest	*NASA Tech Officer*	*CASE Category*
Kraushaar, W. L.	GSFC/Bissell, E. E.	11-Astronomy
	HQ-SA/Opp, A. G.	

NGL 50-002-127 **University of Wisconsin - Madison** **3714**
Multidisciplinary research in space science & engineering

Period	Obligations	
12/19/69-07/31/80	FY77: $185,000	TOTAL: $1,552,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Clapp, J. L.	HQ-P/Vitale, J. A.	39-Env Sci, NEC

NGR 50-002-051 **University of Wisconsin - Madison** **3715**
Applications of the direct photon absorption techniques for measuring bone-mineral content

Period	Obligations	
09/01/66-12/31/77	FY77: $40,000	TOTAL: $569,164
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cameron, J. R.	ARC/Young, D. R.	52-Clinical Med
Mazess, R. B.		

NGR 50-002-162 **University of Wisconsin - Madison** **3716**
Solar wind physics

Period	Obligations	
01/26/71-12/31/77	FY77: $41,844	TOTAL: $352,463
Prin Invest	*NASA Tech Officer*	*CASE Category*
Scherb, F.	HQ-ST/Cauffman, D. P.	13-Physics
	HQ-ST/Schmerling, E. R.	

NGR 50-002-189 **University of Wisconsin - Madison** **3717**
Cloud image processing for planetary flybys

Period	Obligations	
01/19/72-03/31/78	FY77: $51,000	TOTAL: $116,297
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	HQ-SL/Fellows, R. F.	31-Atmos Sci
	HQ-SL/Brunk, W. E.	

NGR 50-002-191 **University of Wisconsin - Madison** **3718**
Elimination of microbial flora and its effect on immunity to infection

Period	Obligations	
02/04/72-12/31/77	FY77:	TOTAL: $170,742
Prin Invest	*NASA Tech Officer*	*CASE Category*
Balish, E.	ARC/Mandel, A. D.	52-Clinical Med

NGR 50-002-215 **University of Wisconsin - Madison** **3719**
Investigation of cloud displacement data in a sophisticated model of the atmosphere

Period	Obligations	
03/01/73-10/31/77	FY77: $25,800	TOTAL: $159,434
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E.	GSFC/Halem, M.	31-Atmos Sci

NSG 1196 **University of Wisconsin - Madison** **3720**
Statistical modeling and inference for orientation data

Period	Obligations	
09/01/75-11/30/77	FY77:	TOTAL: $39,995
Prin Invest	*NASA Tech Officer*	*CASE Category*
Johnson, R. A.	LARC/Campbell, J. W.	21-Mathematics
Bhattacharyya, G. K.		

NSG 2002 **University of Wisconsin - Madison** **3721**
Rapid diagnosis of rhinovirus infection by fluorescent IGG, IGM, and IGA antibody

Period	Obligations	
01/15/74-12/31/77	FY77:	TOTAL: $75,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dick, E. C.	ARC/Mandel, A. D.	52-Clinical Med

NSG 2104 **University of Wisconsin - Madison** **3722**
Viral etiology and epidemiology of respiratory infection in an isolated Antarctic station

Period	Obligations	
09/01/75-01/31/78	FY77: $40,000	TOTAL: $80,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Dick, E. C.	ARC/Mandel, A. D.	52-Clinical Med

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WISCONSIN (Continued)

NSG 5100 **University of Wisconsin - Madison** **3723**
Ultraviolet studies with the Princeton telescope aboard the Copernicus satellite

Period	Obligations	
06/01/76-05/31/78	FY77:	TOTAL: $10,578
Prin Invest	*NASA Tech Officer*	*CASE Category*
Savage, B. D	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5146 **University of Wisconsin - Madison** **3724**
Scientific investigations of tropical wind, energy conversion and reference level experiment

Period	Obligations	
09/07/76-09/06/77	FY77:	TOTAL: $50,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Suomi, V. E	GSFC/Theon, J. S.	31-Atmos Sci

NSG 5152 **University of Wisconsin - Madison** **3725**
Research on clouds and ice in the planetary scale circulation and in climate

Period	Obligations	
01/01/77-12/31/79	FY77: $97,849	TOTAL: $97,849
Prin Invest	*NASA Tech Officer*	*CASE Category*
Houghton, D. D., Suomi, V. E	GSFC/Halem, M.	31-Atmos Sci

NSG 5180 **University of Wisconsin - Madison** **3726**
Analysis of the ultraviolet line profiles in the Wolf-Rayet star HD 50896

Period	Obligations	
06/20/77-06/19/78	FY77: $9,993	TOTAL: $9,993
Prin Invest	*NASA Tech Officer*	*CASE Category*
Cassinelli, J. P	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 5181 **University of Wisconsin - Madison** **3727**
A source of interstellar abundances/ultraviolet studies of the interstellar medium, hot stars and cosmic X-ray sources

Period	Obligations	
07/01/77-06/30/78	FY77: $17,500	TOTAL: $17,500
Prin Invest	*NASA Tech Officer*	*CASE Category*
Savage, B. D.	GSFC/Kupperian, J. E., Jr.	11-Astronomy

NSG 7050 **University of Wisconsin - Madison** **3728**
Data analysis of OAO-2 ultraviolet spectrophotometry

Period	Obligations	
07/01/74-12/31/77	FY77:	TOTAL: $362,200
Prin Invest	*NASA Tech Officer*	*CASE Category*
Code, A. D.	HQ-SA/Roman, N. G HQ-SA/Rosendhal, J. D.	11-Astronomy

NSG 7137 **University of Wisconsin - Madison** **3729**
Ultraviolet studies with the Dutch national satellite

Period	Obligations	
06/01/75-08/31/77	FY77:	TOTAL: $8,717
Prin Invest	*NASA Tech Officer*	*CASE Category*
Savage, B. D.	HQ-SA/Rosendhal, J. D.	11-Astronomy

NSG 7215 **University of Wisconsin - Madison** **3730**
Vacuum ultraviolet photon excitation and electron ejection from surfaces

Period	Obligations	
02/01/76-01/31/78	FY77: $40,647	TOTAL: $80,647
Prin Invest	*NASA Tech Officer*	*CASE Category*
Taylor, J. W.	HQ-SL/Goldstein, B. E. HQ-SL/Quaide, W. L.	32-Geological Sci

NGR 50-007-001 **University of Wisconsin - Milwaukee** **3731**
Dynamic response and flow visualization analyses for helicopter rotor blades

Period	Obligations	
12/02/70-09/30/78	FY77: $16,991	TOTAL: $289,825
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bratanow, T.	LARC/Young, W. H., Jr.	41-Aero Engr

NGR 50-009-001 **University of Wisconsin - Parkside** **3732**
Identification, distribution and significance of forms on Mars

Period	Obligations	
00/00/00-09/30/77	FY77: $7,800	TOTAL: $21,272
Prin Invest	*NASA Tech Officer*	*CASE Category*
Smith, E. I.	HQ-SL/Dwornik, S. E. HQ-SL/Wahmann, R.	32-Geological Sci

WYOMING

NAS 1-13213 **University of Wyoming** **3733**
Stratospheric aerosol measurements for Apollo-Soyuz test project

Period	Obligations	
05/02/74-11/01/76	FY77:	TOTAL: $342,127
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pepin, T. J.	LARC/Crumbly, K. H LARC/Mauldin, L. E., III	31-Atmos Sci

NAS 1-13797 **University of Wyoming** **3734**
Stratospheric aerosol measurement instrument

Period	Obligations	
01/29/75-04/28/79	FY77: $745,505	TOTAL: $2,927,268
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pepin, T. J.	LARC/Hedgepeth, K. D. LARC/Mauldin, L. E., III	31-Atmos Sci

NAS 1-14373 **University of Wyoming** **3735**
Science support for the Nimbus G stratospheric aerosol measurement experiment

Period	Obligations	
04/02/76-10/31/78	FY77: $54,000	TOTAL: $73,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Pepin, T. J.	LARC/McCormick, M. P. LARC/McMaster, L. R	31-Atmos Sci

WYOMING (Continued)

NAS 1-14931 **University of Wyoming** **3736**
Stratospheric aerosol and gas experiment

Period	Obligations	
07/19/77-09/30/79	FY77: $15,000	TOTAL: $15,000
Prin Invest.	*NASA Tech. Officer*	*CASE Category*
Pepin, T. J.	LARC/McMaster, L. R.	31-Atmos Sci
	LARC/McCormick, M. P.	

NAS 8-32067 **University of Wyoming** **3737**
Aerosol and nucleation research in support of NASA cloud physics experiment in space

Period	Obligations	
05/10/76-04/01/78	FY77: $91,342	TOTAL: $121,236
Prin Invest	*NASA Tech. Officer*	*CASE Category*
Vali, G.	MSFC/Schrick, B. J.	31-Atmos Sci

NAS 8-32486 **University of Wyoming** **3738**
Space processing applications rocket: Charged water-drop oscillations

Period	Obligations	
04/30/77-03/31/79	FY77: $25,307	TOTAL: $25,307
Prin Invest	*NASA Tech Officer*	*CASE Category*
Saunders, C.	MSFC/Reeves, F. A.	47-Materials Engr
	MSFC/Chassay, R. P.	

NSG 7207 **University of Wyoming** **3739**
Theoretical investigation of the equilibrium distribution of space shuttle alumina aerosol effluent effect

Period	Obligations	
02/01/76-06/30/77	FY77:	TOTAL: $65,091
Prin Invest	*NASA Tech Officer*	*CASE Category*
Hofmann, D. J.	HQ-SU/King, J., Jr.	31-Atmos Sci

NSG 7349 **University of Wyoming** **3740**
Measurements of the natural background of condensation nuclei at high altitude for assessment of future space shuttle effluent

Period	Obligations	
07/01/77-06/30/78	FY77: $50,985	TOTAL: $50,985
Prin Invest	*NASA Tech. Officer*	*CASE Category*
Hofmann, D. J.	HQ-SU/Simon, N. K.	31-Atmos Sci
Rosen, J. M.	HQ-SU/Tilford, S. G.	

AUSTRALIA

NSG 7272 **University of Sydney** **3741**
Rarefied flow field analysis

Period	Obligations	
07/01/76-06/30/77	FY77: $10,000	TOTAL: $10,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Bird, G. A.	LARC/Melfi, L. T., Jr.	13-Physics
	LARC/Outlaw, R. A.	

CANADA

NAS 1-14843 **University of Toronto** **3742**
Study to develop computational methods for turbulent reaction and for turbulent mixing in curved streamlines

Period	Obligations	
01/17/77-03/14/78	FY77: $29,980	TOTAL: $29,980
Prin Invest	*NASA Tech. Officer*	*CASE Category*
Glass, I. I.	LARC/Evans, J. S.	41-Aero Engr
Sislian, J. P.	LARC/Beach, H. L., Jr.	

NSG 7219 **University of Toronto** **3743**
Experimental evaluation of the tensor polynomial failure criterion for designing composite materials

Period	Obligations	
09/01/75-12/31/77	FY77:	TOTAL: $16,356
Prin Invest	*NASA Tech Officer*	*CASE Category*
Tennyson, R. C.	LARC/Foye, R. L.	47-Materials Engr
	LARC/Pride, R. A.	

NGR 52-134-005 **York University** **3744**
Studies of production and reaction processes of O (1D2) of interest in the earth's atmosphere

Period	Obligations	
04/26/73-08/03/77	FY77:	TOTAL: $119,761
Prin Invest	*NASA Tech Officer*	*CASE Category*
Schiff, H. I.	LERC/Baker, C. E.	31-Atmos Sci

NSG 7223 **York University** **3745**
Studies of the spectrum chlorine monoxide in the stratosphere

Period	Obligations	
05/01/76-04/30/77	FY77:	TOTAL: $40,000
Prin Invest	*NASA Tech Officer*	*CASE Category*
Nicholls, R. W.	ARC/Cooper, D. M.	31-Atmos Sci

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CHILE

NAS 5-1925 **University of Chile** **3746**
Maintenance & operation of minitrack facilities

Period	Obligations	
09/21/62-09/30/77	FY77: $3,692,867	TOTAL: $26,107,727
Prin Invest	*NASA Tech Officer*	*CASE Category*
Danyau, C. R.	GSFC/Lafleur, W.	99-Multi-Discip
	GSFC/Force, C.	

GREAT BRITAIN

NSG 7172 **University of Southhampton** **3747**
Self-streamlining of the test section of a transonic wind tunnel

Period	*Obligations*	
10/01/75-12/31/77	FY77: $14,000	TOTAL: $30,086
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Goodyer, M. J.	LARC/Kilgore, R. A. LARC/Ray, E. J.	41-Aero Engr

ISRAEL

NSG 7072 **Israel Institute of Technology** **3748**
Flutter suppression and gust alleviation using active controls

Period	*Obligations*	
08/01/74-09/30/77	FY77:	TOTAL: $26,512
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Nissim, E.	LARC/Abel, I. LARC/Bland, S. R.	41-Aero Engr

NSG 7083 **Israel Institute of Technology** **3749**
Inelastic behavior of advanced composite materials (boron and graphite epoxy)

Period	*Obligations*	
08/01/74-12/31/77	FY77: $4,000	TOTAL: $24,535
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Weller, T.	LARC/Bush, H. G.	41-Aero Engr

NSG 7317 **Israel Institute of Technology** **3750**
Study of radial face seal mechanism of operation

Period	*Obligations*	
04/01/77-03/31/78	FY77: $20,200	TOTAL: $20,200
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Etsion, I.	LERC/Ludwig, L. P. LERC/Anderson, W. J.	46-Mech Engr

NSG 7311 **Tel-Aviv University** **3751**
Flush mounted separation detector development, analysis and optimization of performances

Period	*Obligations*	
06/01/77-05/31/79	FY77: $13,998	TOTAL: $13,998
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Brosh, A.	ARC/Mateer, G. G. ARC/Marvin, J. G.	41-Aero Engr

ITALY

NASW 1761 **University of Rome** **3752**
Launching and associated activities at San Marco range

Period	*Obligations*	
08/21/70-12/31/75	FY77	TOTAL: $3,296,179
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Unavailable	HQ-MV/Goozh, P. F.	49-Engr, NEC

NASW 2135 **University of Rome** **3753**
Back-up data acquisition

Period	*Obligations*	
10/21/71-09/30/77	FY77: $147,200	TOTAL: $215,455
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Broglio, L.	HQ-TN/Bavely, J. C. HQ-TN/Stockwell, E. J.	11-Astronomy

NETHERLANDS

NSG 7264 **University of Leiden** **3754**
Maps of Jovian radio emission

Period	*Obligations*	
09/01/76-11/30/77	FY77: $50,000	TOTAL: $50,000
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
VanDerLaan, H.	ARC/Grant, T. L. ARC/Vojvodich, N. S.	11-Astronomy

NEW ZEALAND

NSG 7192 **University of Canterbury** **3755**
Study of the propagation of sound in nonuniform duct

Period	*Obligations*	
07/01/75-07/01/78	FY77:	TOTAL: $29,600
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Eversman, W.	LERC/Rice, E. J. LERC/Feiler, C. E.	46-Mech Engr

PERU

NASW 7 **University of Peru** **3756**
Operation of tracking station

Period	*Obligations*	
12/01/68-06/01/79	FY77	TOTAL: $3,300,512
Prin. Invest.	*NASA Tech. Officer*	*CASE Category*
Unavailable	GSFC/Christie, C. J.	49-Engr, NEC

YUGOSLAVIA

NSG 7163 **University of Split** **3757**

Synthesis of time-dependent arc impedance of a large capacitor discharge circuit

Period	*Obligations*	
09/01/75-08/31/76	FY77:	TOTAL: $10,654
Prin Invest	*NASA Tech Officer*	*CASE Category*
Slapnicar, P. I.	ARC/Dannenberg, R. E.	13-Physics

NASA'S UNIVERSITY PROGRAM
APPENDIX A
CROSS INDEX BY GRANT/CONTRACT NUMBER

Entries are arranged alphanumerically. Grants are identifiable by prefix letters NGF, NGL, NGR, NGT and NSG. All other prefixes denote contracts.

GRANT/ CONTRACT NUMBER	ACC NO.
H-23602B	1899
NAS 1-6860	2504
NAS 1-9680	3241
NAS 1-9682	1267
NAS 1-9683	2831
NAS 1-9684	2361
NAS 1-9685	3398
NAS 1-9691	2362
NAS 1-9692	1268
NAS 1-9693	1838
NAS 1-9694	3656
NAS 1-9697	2573
NAS 1-9699	3462
NAS 1-9701	1269
NAS 1-9702	2363
NAS 1-9703	1157
NAS 1-9705	2695
NAS 1-10492	2323
NAS 1-10493	2939
NAS 1-11707	3534
NAS 1-11854	1227
NAS 1-11855	2761
NAS 1-12311	1158
NAS 1-12705	3495
NAS 1-12754	3584
NAS 1-12976	2121
NAS 1-13129	2103
NAS 1-13175	3615
NAS 1-13213	3733
NAS 1-13422	1900
NAS 1-13502	2696
NAS 1-13797	3734
NAS 1-13884	3616
NAS 1-13889	2653
NAS 1-14034	3514
NAS 1-14136	3694
NAS 1-14160	3424
NAS 1-14193	3535
NAS 1-14332	1084
NAS 1-14341	3657
NAS 1-14351	1901
NAS 1-14373	3735
NAS 1-14393	3150
NAS 1-14394	2509
NAS 1-14406	3047
NAS 1-14507	3526
NAS 1-14538	1632
NAS 1-14605	1767
NAS 1-14621	1213
NAS 1-14654	1902
NAS 1-14731	2021
NAS 1-14745	2796
NAS 1-14832	3527
NAS 1-14843	3742
NAS 1-14862	3585
NAS 1-14908	3586
NAS 1-14928	1085
NAS 1-14929	1713
NAS 1-14930	1839
NAS 1-14931	3736
NAS 1-14932	2364
NAS 1-14947	1903
NAS 1-14972	3516
NAS 1-14986	3113
NAS 1-15080	3617
NAS 2-6265	1086
NAS 2-6551	1992
NAS 2-6552	1518
NAS 2-6553	2104
NAS 2-6556	1159
NAS 2-6558	1615
NAS 2-6615	1633
NAS 2-6706	1270
NAS 2-7059	1586
NAS 2-7251	1459
NAS 2-7262	2365
NAS 2-7273	3108
NAS 2-7358	3490
NAS 2-7613	2654
NAS 2-7850	3073
NAS 2-7927	2054
NAS 2-7963	2875
NAS 2-7969	1616
NAS 2-8200	1714
NAS 2-8802	3463
NAS 2-8808	1460
NAS 2-8812	2574
NAS 2-8813	3695
NAS 2-8816	1666
NAS 2-8818	1087
NAS 2-8883	2158
NAS 2-8898	1271
NAS 2-8954	3048
NAS 2-8986	2940
NAS 2-9072	3399
NAS 2-9083	1272
NAS 2-9126	2510
NAS 2-9127	2324
NAS 2-9128	1461
NAS 2-9129	2496
NAS 2-9130	2511
NAS 2-9131	1462
NAS 2-9132	2366
NAS 2-9151	2367
NAS 2-9279	2368
NAS 2-9300	2208
NAS 2-9304	1273
NAS 2-9414	2122
NAS 2-9431	3069
NAS 2-9437	2697
NAS 2-9440	1587
NAS 2-9466	2512
NAS 2-9473	2369
NAS 2-9476	2370
NAS 2-9477	1667
NAS 2-9480	3696
NAS 2-9485	3464
NAS 2-9486	1088
NAS 2-9491	1463
NAS 2-9504	1588
NAS 2-9536	3658
NAS 2-9539	1443
NAS 2-9552	3338
NAS 2-9555	3496
NAS 2-9557	3506
NAS 2-9714	3049
NAS 3-14336	1274
NAS 3-18010	2055
NAS 3-18547	3038
NAS 3-19431	2631
NAS 3-19434	2762
NAS 3-19699	3086
NAS 3-19700	1904
NAS 3-19725	3691
NAS 3-19850	1444
NAS 3-20051	2513
NAS 3-20087	2083
NAS 3-20110	1905
NAS 3-20365	3087
NAS 3-20370	3143
NAS 3-20392	3088
NAS 3-20397	2159
NAS 3-20473	2371
NAS 3-21018	2084
NAS 3-21046	3008
NAS 5-1925	3746
NAS 5-3949	2325
NAS 5-9317	3339
NAS 5-11062	2372
NAS 5-11063	2234
NAS 5-11064	2105
NAS 5-11066	1160
NAS 5-11067	1993

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NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NAS 5-11279	2106
NAS 5-11310	2575
NAS 5-11376	2514
NAS 5-11380	2515
NAS 5-11405	1668
NAS 5-11406	3465
NAS 5-11407	3466
NAS 5-11415	2209
NAS 5-11431	2107
NAS 5-11438	2576
NAS 5-11450	2373
NAS 5-11687	2577
NAS 5-20028	2968
NAS 5-20062	2235
NAS 5-20064	1464
NAS 5-20079	1374
NAS 5-20080	1375
NAS 5-20093	2108
NAS 5-20094	2109
NAS 5-20622	2516
NAS 5-20672	3277
NAS 5-20674	1994
NAS 5-20681	2744
NAS 5-20705	2832
NAS 5-20721	1161
NAS 5-20793	2056
NAS 5-20796	3362
NAS 5-20814	2670
NAS 5-20818	2638
NAS 5-20833	2698
NAS 5-20834	2236
NAS 5-20837	2578
NAS 5-20865	3157
NAS 5-20871	1275
NAS 5-20885	3070
NAS 5-20914	1669
NAS 5-20939	2517
NAS 5-20943	2123
NAS 5-20948	1670
NAS 5-20955	3497
NAS 5-20956	1906
NAS 5-20959	1068
NAS 5-20969	1376
NAS 5-20974	3697
NAS 5-20982	3260
NAS 5-20983	1749
NAS 5-20995	1377
NAS 5-20999	3587
NAS 5-21055	1519
NAS 5-21798	3698
NAS 5-21960	1276
NAS 5-21965	3699
NAS 5-21980	2374
NAS 5-22307	1378
NAS 5-22346	3588
NAS 5-22349	3700
NAS 5-22360	2699
NAS 5-22372	1634
NAS 5-22375	1520
NAS 5-22379	3659
NAS 5-22408	2797
NAS 5-22409	1671
NAS 5-22410	3701
NAS 5-22417	1874
NAS 5-22475	2977
NAS 5-22495	3306
NAS 5-22534	3363
NAS 5-22537	2237
NAS 5-22539	1735
NAS 5-22555	1162
NAS 5-22556	1521
NAS 5-22575	3050
NAS 5-22576	3425
NAS 5-22577	3618
NAS 5-22578	1840
NAS 5-22586	2833
NAS 5-22587	2518
NAS 5-22599	1089
NAS 5-22816	2057
NAS 5-22822	3176
NAS 5-22833	1672
NAS 5-22835	2238
NAS 5-22861	2519
NAS 5-22875	2520
NAS 5-22878	2239
NAS 5-22890	2798
NAS 5-22892	3222
NAS 5-22903	2671
NAS 5-22908	1851
NAS 5-22915	2375
NAS 5-22929	2376
NAS 5-22936	2799
NAS 5-22939	1163
NAS 5-22946	3151
NAS 5-22959	1635
NAS 5-22963	1875
NAS 5-22964	1445
NAS 5-22965	1164
NAS 5-22966	3364
NAS 5-22981	1715
NAS 5-22987	2046
NAS 5-22989	2700
NAS 5-23006	2521
NAS 5-23176	1090
NAS 5-23190	1716
NAS 5-23199	2326
NAS 5-23230	2522
NAS 5-23236	2834
NAS 5-23237	2240
NAS 5-23249	1228
NAS 5-23274	1673
NAS 5-23285	3702
NAS 5-23315	1165
NAS 5-23316	2210
NAS 5-23338	3340
NAS 5-23371	2327
NAS 5-23380	3051
NAS 5-23386	2701
NAS 5-23387	2702
NAS 5-23457	2241
NAS 5-23462	3703
NAS 5-23470	3259
NAS 5-23479	3217
NAS 5-23481	1522
NAS 5-23493	2686
NAS 5-23494	2328
NAS 5-23500	3704
NAS 5-23520	2501
NAS 5-23522	1277
NAS 5-23557	2572
NAS 5-23558	2229
NAS 5-23571	1936
NAS 5-23576	2703
NAS 5-23603	1907
NAS 5-23611	3278
NAS 5-23615	1166
NAS 5-23618	1278
NAS 5-23623	2800
NAS 5-23624	2377
NAS 5-23658	2378
NAS 5-23664	2172
NAS 5-23677	2379
NAS 5-23684	2579
NAS 5-23688	2777
NAS 5-23695	2211
NAS 5-23696	1167
NAS 5-23697	1379
NAS 5-23702	1465
NAS 5-23703	2580
NAS 5-23705	1523
NAS 5-23706	3705
NAS 5-23710	1908
NAS 5-23726	2110
NAS 5-23727	2801
NAS 5-23732	2212
NAS 5-23738	3121
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NAS 5-23761	2687
NAS 5-23771	1674
NAS 5-23777	2124
NAS 5-23785	2835
NAS 5-23791	2523
NAS 5-23799	1796
NAS 5-23800	3173
NAS 5-23801	3266
NAS 5-23803	2688
NAS 5-23804	3467
NAS 5-23808	1675
NAS 5-23809	1768
NAS 5-23827	3365
NAS 5-23850	3052
NAS 5-23859	3177
NAS 5-23886	1909
NAS 5-23891	2669

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NAS 5-23898	3279
NAS 5-24080	2802
NAS 5-24086	2891
NAS 5-24092	2242
NAS 5-24094	2922
NAS 5-24096	2380
NAS 5-24100	2704
NAS 5-24101	2982
NAS 5-24105	1380
NAS 5-24130	2243
NAS 5-24134	2329
NAS 5-24135	2524
NAS 5-24136	3707
NAS 5-24139	2381
NAS 5-24144	3009
NAS 5-24148	1910
NAS 5-24152	2803
NAS 5-24165	1381
NAS 5-24166	1382
NAS 5-24189	1383
NAS 5-24206	3261
NAS 5-24218	3589
NAS 5-24230	3708
NAS 5-24232	1279
NAS 5-24236	2213
NAS 5-24241	2745
NAS 5-24242	1797
NAS 5-24250	3280
NAS 5-24251	1798
NAS 5-24264	3178
NAS 5-24275	2022
NAS 5-24305	2244
NAS 5-24308	1091
NAS 5-24329	3179
NAS 5-24339	1168
NAS 6-1667	3341
NAS 6-2388	3619
NAS 6-2439	2782
NAS 6-2454	3426
NAS 6-2455	2804
NAS 6-2456	3089
NAS 6-2463	1466
NAS 6-2484	3053
NAS 6-2498	3498
NAS 6-2506	1524
NAS 6-2519	2805
NAS 6-2595	2307
NAS 6-2602	3180
NAS 6-2617	2989
NAS 6-2627	3499
NAS 6-2686	2746
NAS 6-2695	2058
NAS 6-2703	1467
NAS 6-2706	2214
NAS 6-2707	3524
NAS 6-2726	3181
NAS 6-2794	2525
NAS 6-2795	2747
NAS 6-2816	2059
NAS 6-2818	3182
NAS 6-2820	1750
NAS 6-2826	3183
NAS 8-20247	1852
NAS 8-24953	1039
NAS 8-26146	2903
NAS 8-26379	3366
NAS 8-26601	3005
NAS 8-26749	2613
NAS 8-26758	1589
NAS 8-27296	3281
NAS 8-27972	2382
NAS 8-27974	1525
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NAS 8-27977	2581
NAS 8-27978	1169
NAS 8-28058	1009
NAS 8-28097	1040
NAS 8-28248	1041
NAS 8-28304	1042
NAS 8-28305	1617
NAS 8-28307	2904
NAS 8-28660	3254
NAS 8-29100	1059
NAS 8-29271	3282
NAS 8-29313	1170
NAS 8-29316	1043
NAS 8-29387	3709
NAS 8-29566	1092
NAS 8-29584	3283
NAS 8-29603	1384
NAS 8-29725	3687
NAS 8-29823	2567
NAS 8-29847	1618
NAS 8-29856	1014
NAS 8-29937	1060
NAS 8-30246	1911
NAS 8-30247	1044
NAS 8-30380	2181
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NAS 8-30537	2384
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NAS 8-30576	2385
NAS 8-30578	2905
NAS 8-30579	1468
NAS 8-30617	1912
NAS 8-30618	2614
NAS 8-30619	1947
NAS 8-30624	1062
NAS 8-30653	1913
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NAS 8-30656	3309
NAS 8-30657	1914
NAS 8-30752	2386
NAS 8-30753	2806
NAS 8-30884	1935
NAS 8-30887	3136
NAS 8-31006	2160
NAS 8-31143	3284
NAS 8-31145	1526
NAS 8-31150	2639
NAS 8-31170	1046
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NAS 8-31194	1048
NAS 8-31195	3054
NAS 8-31196	1094
NAS 8-31223	1016
NAS 8-31233	2173
NAS 8-31234	3367
NAS 8-31235	3152
NAS 8-31237	1636
NAS 8-31252	3273
NAS 8-31293	1049
NAS 8-31294	3090
NAS 8-31321	1050
NAS 8-31333	3114
NAS 8-31344	1916
NAS 8-31345	1051
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NAS 8-31347	1637
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NAS 8-31373	2615
NAS 8-31374	2330
NAS 8-31377	3115
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NAS 8-31510	2582
NAS 8-31513	2872
NAS 8-31537	1095
NAS 8-31538	2645
NAS 8-31549	2331
NAS 8-31550	1149
NAS 8-31552	2388
NAS 8-31556	3310
NAS 8-31564	3274
NAS 8-31565	1952
NAS 8-31568	2616
NAS 8-31571	1280
NAS 8-31572	1017
NAS 8-31605	1799
NAS 8-31673	1638
NAS 8-31688	1639
NAS 8-31702	3218
NAS 8-31706	3158
NAS 8-31707	3159
NAS 8-31708	2791
NAS 8-31709	2792

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NAS 8-31711	2779
NAS 8-31718	3285
NAS 8-31729	1052
NAS 8-31731	1010
NAS 8-31767	2640
NAS 8-31769	1281
NAS 8-31770	2617
NAS 8-31771	1150
NAS 8-31773	3368
NAS 8-31775	3468
NAS 8-31776	2677
NAS 8-31780	2680
NAS 8-31802	3010
NAS 8-31849	2641
NAS 8-31850	1917
NAS 8-31895	1053
NAS 8-31897	2672
NAS 8-31899	3138
NAS 8-31902	2923
NAS 8-31907	3011
NAS 8-31948	1096
NAS 8-31951	3590
NAS 8-31953	2935
NAS 8-31958	1677
NAS 8-31979	1063
NAS 8-31980	3286
NAS 8-31984	2990
NAS 8-31987	2526
NAS 8-31990	1918
NAS 8-32030	3342
NAS 8-32031	3287
NAS 8-32034	3288
NAS 8-32046	3184
NAS 8-32067	3737
NAS 8-32111	3091
NAS 8-32118	3289
NAS 8-32124	3160
NAS 8-32127	1097
NAS 8-32148	2245
NAS 8-32149	1953
NAS 8-32162	3139
NAS 8-32212	2807
NAS 8-32214	2618
NAS 8-32215	1018
NAS 8-32218	2632
NAS 8-32220	1011
NAS 8-32221	1012
NAS 8-32225	1054
NAS 8-32230	1074
NAS 8-32263	1282
NAS 8-32313	2681
NAS 8-32332	2527
NAS 8-32353	3140
NAS 8-32354	2656
NAS 8-32355	1283
NAS 8-32357	1075
NAS 8-32364	1678
NAS 8-32386	1064
NAS 8-32397	1919
NAS 8-32398	1055
NAS 8-32399	3161
NAS 8-32406	3162
NAS 8-32425	2906
NAS 8-32437	3311
NAS 8-32481	1065
NAS 8-32483	1013
NAS 8-32484	3290
NAS 8-32485	2924
NAS 8-32486	3738
NAS 8-32527	3369
NAS 8-32569	2528
NAS 8-32571	1469
NAS 8-32577	1386
NAS 8-32584	3487
NAS 8-32605	1284
NAS 8-32608	1056
NAS 8-32609	3141
NAS 8-32611	3291
NAS 8-32614	2705
NAS 8-32633	1019
NAS 8-32634	1020
NAS 8-32635	3292
NAS 8-32636	3507
NAS 8-32639	2907
NAS 8-32657	3163
NAS 8-32661	2529
NAS 9-6164	1619
NAS 9-9317	2184
NAS 9-10537	3317
NAS 9-11162	3396
NAS 9-11676	3400
NAS 9-11827	3343
NAS 9-11845	3401
NAS 9-12334	2389
NAS 9-12434	3370
NAS 9-12466	1590
NAS 9-12485	2390
NAS 9-12560	2583
NAS 9-13029	3660
NAS 9-13540	3318
NAS 9-13642	2783
NAS 9-13669	3250
NAS 9-13680	3428
NAS 9-13737	3319
NAS 9-13743	3661
NAS 9-13844	1031
NAS 9-13878	3268
NAS 9-13894	3371
NAS 9-13904	3372
NAS 9-13940	2784
NAS 9-14052	2125
NAS 9-14209	3402
NAS 9-14251	1151
NAS 9-14322	3320
NAS 9-14392	2161
NAS 9-14407	3321
NAS 9-14467	1640
NAS 9-14470	3373
NAS 9-14478	3374
NAS 9-14491	3429
NAS 9-14499	3491
NAS 9-14533	2116
NAS 9-14534	3403
NAS 9-14538	3044
NAS 9-14546	3322
NAS 9-14556	3375
NAS 9-14565	1387
NAS 9-14581	3430
NAS 9-14609	2530
NAS 9-14629	3404
NAS 9-14632	2174
NAS 9-14641	3482
NAS 9-14661	3323
NAS 9-14662	3324
NAS 9-14689	3376
NAS 9-14692	1098
NAS 9-14697	3006
NAS 9-14715	3325
NAS 9-14716	1285
NAS 9-14765	1641
NAS 9-14770	1000
NAS 9-14810	3431
NAS 9-14816	1574
NAS 9-14817	3377
NAS 9-14828	3378
NAS 9-14848	2646
NAS 9-14857	3405
NAS 9-14860	3122
NAS 9-14871	3508
NAS 9-14875	3379
NAS 9-14899	2117
NAS 9-14918	3307
NAS 9-14921	1148
NAS 9-14931	2808
NAS 9-14970	2060
NAS 9-14979	3215
NAS 9-15000	3406
NAS 9-15003	2126
NAS 9-15046	3326
NAS 9-15081	2061
NAS 9-15091	3620
NAS 9-15092	3312
NAS 9-15093	3432
NAS 9-15109	2908
NAS 9-15114	1853
NAS 9-15147	2322
NAS 9-15152	1591
NAS 9-15164	3293
NAS 9-15175	3380
NAS 9-15193	3407
NAS 9-15194	2391
NAS 9-15203	1446
NAS 9-15206	1717
NAS 9-15207	3216

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NAS 9-15212	3344
NAS 9-15213	2175
NAS 9-15215	3408
NAS 9-15217	3433
NAS 9-15244	2531
NAS 9-15274	3345
NAS 9-15276	1665
NAS 9-15283	1920
NAS 9-15287	3621
NAS 9-15297	3434
NAS 9-15311	3381
NAS 9-15325	2062
NAS 9-15326	2332
NAS 9-15328	2023
NAS 9-15337	1592
NAS 9-15342	1286
NAS 9-15343	2392
NAS 9-15345	3262
NAS 9-15365	2925
NAS 9-15375	2532
NAS 9-15378	2836
NAS 9-15381	1527
NAS 9-15388	3486
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NAS 9-15441	3269
NAS 9-95469	2748
NAS 9-95470	2749
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NAS 9-95477	2751
NAS 9-95479	2752
NAS 9-95482	2753
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NASW 7	3756
NASW 1761	3752
NASW 2135	3753
NASW 2326	1957
NASW 2648	3500
NASW 2691	3409
NASW 2714	2047
NASW 2742	1958
NASW 2750	2837
NASW 2766	1718
NASW 2768	1769
NASW 2771	1620
NASW 2787	2393
NASW 2801	1959
NASW 2805	2763
NASW 2819	3710
NASW 2835	1211
NASW 2838	3223
NASW 2845	2048
NASW 2881	3110
NASW 2890	1770
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NASW 2938	2333
NASW 2944	1099
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NASW 3009	1621
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NASW 3029	1771
NASW 3031	1622
NASW 3039	2162
NASW 3042	3224
NASW 3059	1736
NASW 3060	1850
NASW 3065	2533
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NAS10-8795	1876
NAS10-8920	1854
NAS10-8926	1877
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NAS10-8986	1846
NAS10-9005	1879
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NCA 2-675711	1244
NCA 2-678701	1208
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NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NCA 2-685402	1595
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NCA 2-745718	1300
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NCA 2-850701	3662
NCA 2-865701	3711
NCA 2-890701	3107
NCA 5-13	2247
NCA 5-14	1800
NCA 5-17	2248
NCA 5-18	2249
NCA 5-19	1102
NCA 5-20	2250
NCA 5-21	1801
NCA 5-22	2251
NCA 5-55	2765
NCA 5-56	2766
NCA 5-57	2767
NCA 5-58	2736
NCA 5-59	2737
NCA 5-62	1103
NCA 5-63	1826
NCA 5-64	2738
NCA 5-65	2252
NCA 5-66	2768
NCA 5-67	2739
NCA 5-68	2740
NCA 5-69	2741
NCA 5-71	2742
NCA 5-72	2743
NCA 5-75	1104
NCA 5-76	1105
NCA 5-77	1827
NCA 8-102	3275
NCA 8-107	2619
NCA 8-120	1022
NCA 8-121	2043
NCA 8-123	3165
NCA 8-124	1023
NCA 8-125	1024
NCA 8-127	2044
NCA 8-128	1025
NCA 8-129	2045
NGL 02-001-092	1069
NGL 03-001-001	1078
NGL 03-002-002	1106
NGL 03-002-017	1107
NGL 03-002-019	1108
NGL 03-002-032	1109
NGL 03-002-081	1110
NGL 03-002-122	1111
NGL 03-002-191	1112
NGL 03-002-313	1113
NGL 04-001-097	1152
NGL 05-002-003	1171
NGL 05-002-034	1172
NGL 05-002-069	1173
NGL 05-002-105	1174
NGL 05-002-134	1175
NGL 05-002-149	1176
NGL 05-002-188	1177
NGL 05-002-190	1178
NGL 05-002-207	1179
NGL 05-002-338	1180
NGL 05-003-003	1396
NGL 05-003-017	1397
NGL 05-003-272	1398
NGL 05-003-286	1399
NGL 05-003-404	1400
NGL 05-003-409	1401
NGL 05-003-410	1402
NGL 05-003-497	1403
NGL 05-004-008	1451
NGL 05-005-003	1529
NGL 05-005-004	1530
NGL 05-005-007	1531
NGL 05-007-002	1474
NGL 05-007-004	1475
NGL 05-007-006	1476
NGL 05-007-190	1477
NGL 05-007-367	1478
NGL 05-007-379	1479
NGL 05-008-005	1516
NGL 05-009-002	1532
NGL 05-009-004	1533
NGL 05-009-005	1534
NGL 05-009-109	1535
NGL 05-009-148	1536
NGL 05-009-150	1537
NGL 05-018-118	1623
NGL 05-020-007	1303
NGL 05-020-008	1304
NGL 05-020-014	1305
NGL 05-020-103	1306
NGL 05-020-176	1307
NGL 05-020-242	1308
NGL 05-020-243	1309
NGL 05-020-272	1310
NGL 05-020-305	1311
NGL 05-020-397	1312
NGL 05-020-498	1313
NGL 05-020-582	1314
NGL 05-046-002	1245
NGL 06-003-052	1680
NGL 06-003-057	1681
NGL 06-003-064	1682
NGL 06-003-200	1683
NGL 07-00[illegible]-005	1740
NGL 07-004-043	1741
NGL 09-010-0[illegible]	1772
NGL 09-011-017	1802
NGL 09-011-046	1803
NGL 10-005-008	1856
NGL 10-005-022	1857
NGL 10-005-089	1858
NGL 10-005-127	1859
NGL 11-001-009	1896
NGL 11-002-004	1923
NGL 11-008-001	1937
NGL 12-001-011	1960
NGL 12-001-042	1961
NGL 12-001-057	1962
NGL 14-001-001	1995
NGL 14-001-005	1996
NGL 14-001-006	1997
NGL 14-001-010	1998
NGL 14-001-167	1999
NGL 14-001-169	2000
NGL 14-001-171	2001
NGL 14-001-258	2002
NGL 14-005-140	2024
NGL 14-007-041	1981
NGL 15-003-002	2050
NGL 15-005-140	2063
NGL 15-005-186	2064
NGL 16-001-002	2111
NGL 16-001-043	2112
NGL 17-001-026	2119
NGL 17-004-024	2129
NGL 19-001-105	2183
NGL 21-002-005	2253
NGL 21-002-033	2254
NGL 22-007-006	2335
NGL 22-007-069	2336
NGL 22-007-117	2337
NGL 22-007-228	2338
NGL 22-007-247	2339

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NGL 22-009-013	2395
NGL 22-009-015	2396
NGL 22-009-124	2397
NGL 22-009-125	2398
NGL 22-009-187	2399
NGL 22-009-308	2400
NGL 22-009-333	2401
NGL 22-009-521	2402
NGL 22-009-548	2403
NGL 22-009-638	2404
NGL 22-009-640	2405
NGL 22-010-023	2497
NGL 22-010-025	2498
NGL 22-010-089	2499
NGL 23-004-083	2505
NGL 23-005-010	2534
NGL 23-005-275	2535
NGL 24-005-008	2584
NGL 24-005-009	2585
NGL 24-005-160	2586
NGL 24-005-225	2587
NGL 24-005-263	2588
NGL 25-001-054	2620
NGL 26-004-021	2642
NGL 26-008-065	2657
NGL 28-004-020	2673
NGL 30-002-018	2689
NGL 30-002-021	2690
NGL 31-001-005	2707
NGL 31-001-007	2708
NGL 31-001-146	2709
NGL 31-001-252	2710
NGL 31-001-283	2711
NGL 32-003-001	2756
NGL 32-004-011	2769
NGL 32-004-063	2770
NGL 32-004-064	2771
NGL 33-010-082	2841
NGL 33-010-171	2842
NGL 33-010-186	2843
NGL 33-013-040	2785
NGL 33-015-130	2942
NGL 33-015-174	2943
NGL 33-016-119	2876
NGL 33-018-003	2909
NGL 33-018-007	2910
NGL 33-018-091	2911
NGL 33-023-018	2974
NGL 33-183-013	2936
NGL 34-001-001	2978
NGL 34-002-095	2991
NGL 36-003-064	3012
NGL 36-003-094	3013
NGL 36-008-051	3056
NGL 36-008-138	3057
NGL 38-002-020	3125
NGL 38-002-039	3126
NGL 38-002-053	3127
NGL 38-003-022	3131
NGL 39-007-007	3166
NGL 39-009-003	3185
NGL 39-009-007	3186
NGL 39-009-010	3187
NGL 39-009-032	3188
NGL 39-009-172	3189
NGL 39-011-013	3225
NGL 39-011-030	3226
NGL 39-011-035	3227
NGL 39-011-085	3228
NGL 41-002-003	3255
NGL 42-003-007	3263
NGL 43-001-006	3294
NGL 43-001-140	3295
NGL 44-001-001	3382
NGL 44-004-026	3470
NGL 44-004-130	3471
NGL 44-006-001	33 [illegible]
NGL 44-006-012	3347
NGL 44-006-127	3348
NGL 44-012-006	3437
NGL 44-012-055	3438
NGL 47-002-005	3611
NGL 47-002-020	3612
NGL 47-003-067	3536
NGL 47-004-067	3622
NGL 47-004-080	3623
NGL 47-005-066	3591
NGL 47-006-058	3517
NGL 47-014-009	3654
NGL 48-002-004	3663
NGL 48-002-010	3664
NGL 48-002-035	3665
NGL 48-002-044	3666
NGL 48-002-047	3667
NGL 50-002-013	3712
NGL 50-002-044	3713
NGL 50-002-127	3714
NGR 01-001-023	1001
NGR 01-007-009	1029
NGR 01-010-001	1038
NGR 02-001-087	1070
NGR 03-002-107	1114
NGR 03-002-171	1115
NGR 03-002-219	1116
NGR 03-002-269	1117
NGR 03-002-332	1118
NGR 03-002-370	1119
NGR 03-002-371	1120
NGR 03-002-388	1121
NGR 03-002-390	1122
NGR 05-002-114	1181
NGR 05-002-117	1182
NGR 05-002-121	1183
NGR 05-002-160	1184
NGR 05-002-256	1185
NGR 05-002-281	1186
NGR 05-002-284	1187
NGR 05-002-303	1188
NGR 05-002-333	1189
NGR 05-002-345	1190
NGR 05-003-239	1404
NGR 05-003-376	1405
NGR 05-003-450	1406
NGR 05-003-451	1407
NGR 05-003-452	1408
NGR 05-003-460	1409
NGR 05-003-471	1410
NGR 05-003-511	1411
NGR 05-003-513	1412
NGR 05-003-553	1413
NGR 05-003-562	1414
NGR 05-003-578	1415
NGR 05-005-005	1538
NGR 05-005-055	1539
NGR 05-007-221	1480
NGR 05-007-276	1481
NGR 05-007-289	1482
NGR 05-007-317	1483
NGR 05-007-328	1484
NGR 05-007-329	1485
NGR 05-007-337	1486
NGR 05-007-351	1487
NGR 05-007-407	1488
NGR 05-007-414	1489
NGR 05-007-416	1490
NGR 05-007-418	1491
NGR 05-008-022	1517
NGR 05-009-075	1540
NGR 05-009-076	1541
NGR 05-009-083	1542
NGR 05-009-110	1543
NGR 05-009-188	1544
NGR 05-009-213	1545
NGR 05-009-218	1546
NGR 05-009-239	1547
NGR 05-009-246	1548
NGR 05-009-257	1549
NGR 05-009-260	1550
NGR 05-009-264	1551
NGR 05-010-062	1578
NGR 05-010-081	1579
NGR 05-017-010	1606
NGR 05-017-027	1607
NGR 05-017-033	1608
NGR 05-017-037	1609
NGR 05-018-178	1624
NGR 05-018-180	1625
NGR 05-018-181	1626
NGR 05-018-185	1627
NGR 05-020-001	1315
NGR 05-020-004	1316
NGR 05-020-019	1317
NGR 05-020-345	1318
NGR 05-020-405	1319

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NGR 05-020-435	1320
NGR 05-020-452	1321
NGR 05-020-456	1322
NGR 05-020-559	1323
NGR 05-020-615	1324
NGR 05-020-622	1325
NGR 05-020-634	1326
NGR 05-020-649	1327
NGR 05-020-668	1328
NGR 05-020-671	1329
NGR 05-020-690	1330
NGR 05-020-710	1331
NGR 05-041-012	1456
NGR 05-046-011	1246
NGR 05-058-003	1224
NGR 05-061-015	1585
NGR 06-002-075	1643
NGR 06-002-095	1644
NGR 06-002-098	1645
NGR 06-002-102	1646
NGR 06-002-112	1647
NGR 06-002-147	1648
NGR 06-002-159	1649
NGR 06-002-191	1650
NGR 06-003-069	1684
NGR 06-003-127	1685
NGR 06-003-176	1686
NGR 06-003-179	1687
NGR 06-003-181	1688
NGR 06-003-199	1689
NGR 06-003-208	1690
NGR 06-003-215	1691
NGR 06-004-058	1722
NGR 06-004-060	1723
NGR 07-004-009	1742
NGR 07-004-166	1743
NGR 07-010-002	1734
NGR 08-002-005	1748
NGR 09-005-063	1760
NGR 09-005-099	1761
NGR 09-005-103	1762
NGR 09-010-064	1773
NGR 09-010-074	1774
NGR 09-010-078	1775
NGR 09-010-085	1776
NGR 09-010-096	1777
NGR 09-011-057	1804
NGR 09-050-001	1820
NGR 09-050-003	1821
NGR 09-050-019	1822
NGR 09-050-020	1823
NGR 09-053-003	1818
NGR 10-004-056	1841
NGR 10-005-057	1860
NGR 10-005-169	1861
NGR 10-005-182	1862
NGR 10-007-008	1880
NGR 10-007-097	1881
NGR 10-007-118	1882
NGR 10-010-002	1830
NGR 10-019-004	1847
NGR 10-019-009	1848
NGR 10-022-001	1828
NGR 11-001-016	1897
NGR 11-001-045	1898
NGR 11-003-037	1955
NGR 12-001-075	1963
NGR 12-001-109	1964
NGR 12-001-127	1965
NGR 14-001-008	2003
NGR 14-001-135	2004
NGR 14-001-147	2005
NGR 14-001-194	2006
NGR 14-001-211	2007
NGR 14-001-225	2008
NGR 14-001-227	2009
NGR 14-001-249	2010
NGR 14-005-149	2025
NGR 14-005-176	2026
NGR 14-005-181	2027
NGR 14-005-194	2028
NGR 14-005-200	2029
NGR 14-005-202	2030
NGR 14-007-131	1982
NGR 14-007-136	1983
NGR 14-008-026	1990
NGR 15-003-105	2051
NGR 15-003-118	2052
NGR 15-005-119	2065
NGR 15-005-157	2066
NGR 15-005-162	2067
NGR 15-005-191	2068
NGR 16-002-038	2094
NGR 17-002-072	2130
NGR 17-002-106	2131
NGR 17-003-021	2154
NGR 17-004-027	2132
NGR 18-001-058	2164
NGR 18-001-083	2165
NGR 19-005-003	2186
NGR 19-005-006	2187
NGR 19-007-004	2198
NGR 19-011-012	2178
NGR 19-011-016	2179
NGR 21-001-001	2216
NGR 21-001-111	2217
NGR 21-002-002	2255
NGR 21-002-010	2232
NGR 21-002-066	2256
NGR 21-002-073	2257
NGR 21-002-096	2258
NGR 21-002-199	2259
NGR 21-002-224	2260
NGR 21-002-270	2261
NGR 21-002-291	2262
NGR 21-002-316	2263
NGR 21-002-317	2264
NGR 21-002-344	2265
NGR 21-002-368	2266
NGR 21-002-390	2267
NGR 21-002-399	2268
NGR 21-002-400	2269
NGR 21-002-444	2270
NGR 21-027-001	2201
NGR 21-027-004	2202
NGR 21-027-010	2203
NGR 21-119-001	2308
NGR 21-119-002	2309
NGR 21-119-003	2310
NGR 22-004-018	2316
NGR 22-004-025	2317
NGR 22-004-030	2318
NGR 22-007-202	2340
NGR 22-007-256	2341
NGR 22-007-269	2342
NGR 22-007-270	2343
NGR 22-007-272	2344
NGR 22-009-005	2406
NGR 22-009-102	2407
NGR 22-009-277	2408
NGR 22-009-339	2409
NGR 22-009-378	2410
NGR 22-009-473	2411
NGR 22-009-526	2412
NGR 22-009-540	2413
NGR 22-009-551	2414
NGR 22-009-583	2415
NGR 22-009-627	2416
NGR 22-009-646	2417
NGR 22-009-672	2418
NGR 22-009-701	2419
NGR 22-009-723	2420
NGR 22-009-727	2421
NGR 22-009-730	2422
NGR 22-009-735	2423
NGR 22-009-741	2424
NGR 22-009-766	2425
NGR 22-009-781	2426
NGR 22-009-790	2427
NGR 22-009-798	2428
NGR 22-009-799	2429
NGR 22 009-805	2430
NGR 22-009-818	2431
NGR 22-009-826	2432
NGR 22-009-839	2433
NGR 22 010-076	2500
NGR 23-004-091	2506
NGR 23-005-015	2536
NGR 23-005-094	2537
NGR 23-005-320	2538
NGR 23-005-360	2539
NGR 23-005-464	2540
NGR 23-005-528	2541
NGR 23-005-536	2542

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NGR 23-005-540	2543
NGR 24-005-050	2589
NGR 24-005-223	2590
NGR 24-005-248	2591
NGR 25-001-055	2621
NGR 25-012-001	2608
NGR 26-004-097	2647
NGR 26-006-039	2636
NGR 26-008-001	2658
NGR 27-001-040	2668
NGR 28-004-021	2674
NGR 28-004-025	2675
NGR 30-001-041	2682
NGR 30-002-052	2691
NGR 30-002-054	2692
NGR 30-002-104	2693
NGR 31-001-202	2712
NGR 31-001-242	2713
NGR 31-001-277	2714
NGR 31-001-307	2715
NGR 32-004-062	2772
NGR 32-004-086	2773
NGR 33-006-047	2892
NGR 33-006-068	2893
NGR 33-006-070	2894
NGR 33-008-102	2809
NGR 33-008-146	2810
NGR 33-008-177	2811
NGR 33-008-183	2812
NGR 33-008-191	2813
NGR 33-008-199	2814
NGR 33-010-081	2844
NGR 33-010-101	2845
NGR 33-010-108	2846
NGR 33-010-137	2847
NGR 33-010-145	2848
NGR 33-010-146	2849
NGR 33-010-161	2850
NGR 33-010-172	2851
NGR 33-010-178	2852
NGR 33-010-182	2853
NGR 33-010-188	2854
NGR 33-010-189	2855
NGR 33-010-220	2856
NGR 33-013-086	2786
NGR 33-015-108	2937
NGR 33-015-139	2944
NGR 33-015-141	2945
NGR 33-015-160	2946
NGR 33-015-165	2947
NGR 33-015-169	2948
NGR 33-015-180	2949
NGR 33-016-131	2877
NGR 33-016-167	2878
NGR 33-016-196	2879
NGR 33-016-201	2880
NGR 33-018-148	2912
NGR 33-018-188	2913
NGR 33-019-002	2969
NGR 33-022-157	2966
NGR 33-032-004	2967
NGR 33-209-002	2874
NGR 33-219-002	2964
NGR 34-002-188	2992
NGR 34-002-195	2993
NGR 36-004-061	3074
NGR 36-004-064	3075
NGR 36-004-075	3076
NGR 36-008-161	3058
NGR 36-008-204	3059
NGR 36-009-017	3071
NGR 36-027-050	3014
NGR 36-027-051	3015
NGR 36-027-053	3016
NGR 36-027-064	3017
NGR 36-033-003	3037
NGR 38-003-020	3132
NGR 38-003-036	3133
NGR 39-007-011	3167
NGR 39-007-043	3168
NGR 39-007-056	3169
NGR 39-007-061	3170
NGR 39-007-064	3171
NGR 39-009-034	3190
NGR 39-009-077	3191
NGR 39-009-180	3192
NGR 39-009-270	3193
NGR 39-009-275	3194
NGR 39-010-149	3219
NGR 39-011-137	3229
NGR 39-011-161	3230
NGR 39-087-003	3144
NGR 39-087-021	3145
NGR 39-087-047	3146
NGR 39-087-053	3147
NGR 40-002-088	3242
NGR 40-002-093	3243
NGR 40-002-116	3244
NGR 40-002-123	3245
NGR 43-001-134	3296
NGR 43-001-135	3297
NGR 43-003-015	3276
NGR 43-021-002	3264
NGR 44-001-117	3383
NGR 44-001-152	3384
NGR 44-004-030	3472
NGR 44-004-120	3473
NGR 44-004-124	3474
NGR 44-005-002	3410
NGR 44-005-091	3411
NGR 44-005-133	3412
NGR 44-005-137	3413
NGR 44-006-137	3349
NGR 44-006-156	3350
NGR 44-012-152	3439
NGR 44-012-165	3440
NGR 44-012-209	3441
NGR 44-012-225	3442
NGR 44-012-258	3443
NGR 44-012-282	3444
NGR 44-012-283	3445
NGR 44-015-003	3489
NGR 44-081-001	3328
NGR 44-081-005	3329
NGR 44-087-002	3332
NGR 44-088-002	3483
NGR 44-095-001	3327
NGR 45-001-011	3492
NGR 45-001-032	3493
NGR 45-003-108	3502
NGR 47-002-041	3613
NGR 47-003-052	3537
NGR 47-004-090	3624
NGR 47-004-114	3625
NGR 47-004-129	3626
NGR 47-005-172	3592
NGR 47-005-204	3593
NGR 47-005-208	3594
NGR 47-005-219	3595
NGR 47-020-006	3529
NGR 48-002-033	3668
NGR 48-002-107	3669
NGR 48-002-141	3670
NGR 48-002-142	3671
NGR 48-002-153	3672
NGR 48-002-154	3673
NGR 50-002-051	3715
NGR 50-002-162	3716
NGR 50-002-189	3717
NGR 50-002-191	3718
NGR 50-002-215	3719
NGR 50-007-001	3731
NGR 50-009-001	3732
NGR 52-134-005	3744
NGT 01-002-080	1066
NGT 01-002-095	1067
NGT 01-003-044	1026
NGT 01-005-750	1033
NGT 01-008-021	1057
NGT 05-020-409	1332
NGT 05-020-412	1333
NGT 05-020-777	1334
NGT 09-011-058	1805
NGT 11-008-004	1938
NGT 11-013-001	1951
NGT 19-005-750	2188
NGT 21-002-254	2271
NGT 21-025-006	2230
NGT 21-027-012	2204
NGT 21-123-001	2207
NGT 24-005-078	2592
NGT 32-003-750	2757
NGT 32-004-750	2774
NGT 32-004-770	2775

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO
NGT 32-010-001	2734
NGT 34-012-750	2983
NGT 34-017-001	2976
NGT 36-008-007	3060
NGT 36-027-011	3018
NGT 37-003-760	3117
NGT 39-108-750	3174
NGT 43-014-750	3270
NGT 44-005-114	3414
NGT 44-005-115	3415
NGT 44-033-750	3336
NGT 44-073-750	3360
NGT 44-085-750	3479
NGT 47-003-028	3538
NGT 47-003-029	3539
NSG 400	1744
NSG 801	2157
NSG 802	3112
NSG 803	1949
NSG 804	2735
NSG 805	1831
NSG 806	1731
NSG 901	1832
NSG 902	2776
NSG 1005	1191
NSG 1008	3249
NSG 1010	3596
NSG 1014	3533
NSG 1015	3627
NSG 1018	2434
NSG 1020	3628
NSG 1024	3629
NSG 1026	1778
NSG 1028	3540
NSG 1040	3541
NSG 1046	2133
NSG 1048	2435
NSG 1050	2648
NSG 1058	2994
NSG 1063	2031
NSG 1064	3630
NSG 1070	2716
NSG 1075	2272
NSG 1076	3246
NSG 1077	2995
NSG 1079	3542
NSG 1080	2544
NSG 1081	3298
NSG 1083	2622
NSG 1084	2659
NSG 1085	3631
NSG 1086	3530
NSG 1087	3543
NSG 1089	3518
NSG 1095	3519
NSG 1098	3544
NSG 1100	3545
NSG 1110	1779
NSG 1114	3632
NSG 1115	2815
NSG 1116	2996
NSG 1120	1976
NSG 1122	2134
NSG 1124	3633
NSG 1127	3546
NSG 1128	3597
NSG 1130	1806
NSG 1131	3547
NSG 1139	2135
NSG 1142	2136
NSG 1143	3548
NSG 1149	1751
NSG 1150	2019
NSG 1152	3549
NSG 1155	1780
NSG 1156	2273
NSG 1159	1889
NSG 1161	1781
NSG 1163	3299
NSG 1164	2816
NSG 1165	2155
NSG 1167	3550
NSG 1169	2787
NSG 1171	3300
NSG 1174	3385
NSG 1177	3551
NSG 1179	2981
NSG 1180	3598
NSG 1181	1807
NSG 1183	3118
NSG 1184	3061
NSG 1185	3077
NSG 1190	2436
NSG 1193	2274
NSG 1196	3720
NSG 1197	3552
NSG 1198	2895
NSG 1201	1335
NSG 1202	2997
NSG 1203	3520
NSG 1205	2998
NSG 1206	3358
NSG 1207	3553
NSG 1208	3078
NSG 1209	3532
NSG 1213	1692
NSG 1214	3634
NSG 1216	1782
NSG 1219	2437
NSG 1220	2176
NSG 1221	1628
NSG 1222	3247
NSG 1224	3301
NSG 1226	3554
NSG 1228	1783
NSG 1229	2545
NSG 1230	3635
NSG 1232	3313
NSG 1235	3314
NSG 1236	3555
NSG 1238	3636
NSG 1239	3637
NSG 1241	3556
NSG 1242	2623
NSG 1243	2546
NSG 1244	2896
NSG 1245	3557
NSG 1248	2897
NSG 1249	2624
NSG 1250	3638
NSG 1251	1784
NSG 1252	3558
NSG 1253	2717
NSG 1254	3639
NSG 1255	3640
NSG 1256	3599
NSG 1260	3559
NSG 1262	3641
NSG 1263	2857
NSG 1265	2218
NSG 1266	1977
NSG 1269	2137
NSG 1270	1492
NSG 1271	3560
NSG 1272	3503
NSG 1273	2166
NSG 1274	3600
NSG 1275	3642
NSG 1276	3643
NSG 1278	2069
NSG 1279	3561
NSG 1281	2138
NSG 1282	3562
NSG 1283	1883
NSG 1284	2625
NSG 1286	3644
NSG 1287	2999
NSG 1288	1924
NSG 1289	1785
NSG 1290	3416
NSG 1292	2438
NSG 1293	2070
NSG 1294	3531
NSG 1295	2495
NSG 1296	2984
NSG 1297	3251
NSG 1298	2881
NSG 1299	2439
NSG 1300	2898
NSG 1301	2139
NSG 1304	1752
NSG 1305	2788
NSG 1306	2547
NSG 1307	1925

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NSG 1308	3195
NSG 1310	2140
NSG 1312	2440
NSG 1313	3504
NSG 1314	2733
NSG 1315	3563
NSG 1316	3480
NSG 1318	3564
NSG 1319	2053
NSG 1320	1908
NSG 1321	3565
NSG 1323	2441
NSG 1324	3566
NSG 1325	3567
NSG 1326	2548
NSG 1327	3062
NSG 1328	3196
NSG 1329	1842
NSG 1330	2568
NSG 1331	3568
NSG 1333	1724
NSG 1334	3256
NSG 1335	3601
NSG 1336	2275
NSG 1337	2442
NSG 1338	1786
NSG 1339	1787
NSG 1340	3308
NSG 1341	3569
NSG 1342	3655
NSG 1343	3570
NSG 1344	3571
NSG 1345	1336
NSG 1346	2985
NSG 1347	1416
NSG 1348	3572
NSG 1349	2443
NSG 1350	3573
NSG 1351	1926
NSG 1352	1927
NSG 1353	3000
NSG 1354	3645
NSG 1355	3001
NSG 1356	2444
NSG 1357	3574
NSG 1358	3646
NSG 1359	3197
NSG 1360	2914
NSG 1361	2199
NSG 1362	3575
NSG 1363	1863
NSG 1364	3647
NSG 1365	2858
NSG 1366	3302
NSG 1367	3148
NSG 1368	1753
NSG 1369	2649
NSG 1370	3576
NSG 1371	2859
NSG 1372	2095
NSG 1373	2549
NSG 1374	3386
NSG 1375	2626
NSG 1376	3648
NSG 1377	3002
NSG 1378	2781
NSG 1379	3577
NSG 1380	2635
NSG 1381	1337
NSG 1382	3649
NSG 1383	3045
NSG 1384	2915
NSG 1385	3521
NSG 1386	1552
NSG 1387	3198
NSG 1388	3602
NSG 1389	3650
NSG 1390	2986
NSG 1391	3303
NSG 1392	2660
NSG 1393	3578
NSG 1394	3579
NSG 1395	3580
NSG 1396	3046
NSG 1397	2141
NSG 1398	1754
NSG 1399	3603
NSG 1400	2032
NSG 1401	1629
NSG 1402	2627
NSG 1403	3604
NSG 1404	3119
NSG 1405	1725
NSG 1406	3605
NSG 1407	3387
NSG 1408	3315
NSG 1409	1755
NSG 1410	1338
NSG 1411	3252
NSG 1412	3692
NSG 1413	2445
NSG 1414	1809
NSG 1415	1788
NSG 1416	2446
NSG 1417	3105
NSG 1418	1795
NSG 1420	1890
NSG 1421	2142
NSG 1422	2143
NSG 1423	3003
NSG 1424	2167
NSG 1425	1864
NSG 1426	3581
NSG 1427	3606
NSG 1428	3651
NSG 1429	3515
NSG 1430	1[illegible]
NSG 1431	2593
NSG 1432	1726
NSG 1433	1756
NSG 1434	2033
NSG 1435	3522
NSG 1436	1884
NSG 1437	3004
NSG 1438	1[illegible]
NSG 1439	1727
NSG 1440	3446
NSG 1441	3582
NSG 1442	2219
NSG 1443	1339
NSG 1444	2882
NSG 1445	3039
NSG 1446	3447
NSG 1447	2447
NSG 1448	2550
NSG 1449	1790
NSG 1451	1978
NSG 1454	2628
NSG 1457	3199
NSG 2002	3721
NSG 2003	1417
NSG 2006	3359
NSG 2007	1340
NSG 2008	2569
NSG 2010	2448
NSG 2013	3042
NSG 2014	2594
NSG 2018	2551
NSG 2020	1341
NSG 2023	2637
NSG 2026	1418
NSG 2029	1833
NSG 2031	2345
NSG 2032	2449
NSG 2034	3106
NSG 2036	1610
NSG 2038	3652
NSG 2039	1593
NSG 2040	2096
NSG 2041	2189
NSG 2043	1419
NSG 2047	1247
NSG 2048	1732
NSG 2050	1342
NSG 2057	2011
NSG 2058	1058
NSG 2062	2718
NSG 2063	1594
NSG 2065	3448
NSG 2066	1248
NSG 2067	2177
NSG 2072	1343
NSG 2075	1611
NSG 2077	3423

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NSG 2078	2860
NSG 2084	1420
NSG 2085	1344
NSG 2086	1612
NSG 2088	2778
NSG 2090	1249
NSG 2091	2097
NSG 2092	1345
NSG 2095	2450
NSG 2098	2233
NSG 2099	2034
NSG 2100	1346
NSG 2102	1347
NSG 2103	1834
NSG 2104	3722
NSG 2105	1250
NSG 2110	1421
NSG 2111	1251
NSG 2112	1123
NSG 2113	2552
NSG 2114	2719
NSG 2116	3231
NSG 2117	3232
NSG 2118	2451
NSG 2119	2035
NSG 2120	1865
NSG 2121	1348
NSG 2122	3200
NSG 2123	3388
NSG 2125	1422
NSG 2127	1423
NSG 2128	1693
NSG 2129	2452
NSG 2130	1252
NSG 2131	3674
NSG 2132	1349
NSG 2134	2156
NSG 2135	2071
NSG 2137	3397
NSG 2139	2196
NSG 2140	2678
NSG 2141	1350
NSG 2142	2453
NSG 2143	1894
NSG 2144	2346
NSG 2145	2144
NSG 2147	2899
NSG 2149	1984
NSG 2150	2098
NSG 2151	1424
NSG 2152	2099
NSG 2155	1737
NSG 2156	2493
NSG 2158	2072
NSG 2159	1226
NSG 2162	3063
NSG 2165	1253
NSG 2166	1351
NSG 2167	1254
NSG 2170	2661
NSG 2171	1493
NSG 2172	2454
NSG 2173	2950
NSG 2174	2861
NSG 2175	3064
NSG 2176	3675
NSG 2179	3065
NSG 2180	2455
NSG 2181	2720
NSG 2182	2900
NSG 2183	1835
NSG 2185	1745
NSG 2186	1255
NSG 2187	2168
NSG 2188	1973
NSG 2189	3449
NSG 2190	1352
NSG 2191	2643
NSG 2192	2073
NSG 2193	2644
NSG 2194	2721
NSG 2196	2456
NSG 2197	3233
NSG 2198	2970
NSG 2199	1218
NSG 2200	1256
NSG 2201	1843
NSG 2202	1353
NSG 2203	1354
NSG 2204	2457
NSG 2205	1124
NSG 2207	1425
NSG 2208	3134
NSG 2209	1257
NSG 2210	1235
NSG 2211	1426
NSG 2213	1258
NSG 2214	1355
NSG 2215	1356
NSG 2216	2276
NSG 2217	1030
NSG 2219	1259
NSG 2220	3066
NSG 2222	1580
NSG 2223	1260
NSG 2224	1261
NSG 2225	3607
NSG 2226	3389
NSG 2228	3676
NSG 2229	1192
NSG 2230	2458
NSG 2232	1651
NSG 2233	1357
NSG 2234	1452
NSG 2235	1262
NSG 2236	1263
NSG 2237	1264
NSG 2238	1991
NSG 2239	1265
NSG 2240	1212
NSG 2241	3201
NSG 2242	1427
NSG 2243	1428
NSG 2244	1225
NSG 2245	2553
NSG 2246	1358
NSG 2247	1266
NSG 2248	1694
NSG 2249	1359
NSG 2250	1360
NSG 2251	1361
NSG 2253	1652
NSG 2254	1362
NSG 2255	1363
NSG 2256	1453
NSG 2257	2100
NSG 2258	1364
NSG 2259	2873
NSG 2265	2347
NSG 2268	3079
NSG 3001	2277
NSG 3002	3234
NSG 3004	2610
NSG 3007	2916
NSG 3008	2036
NSG 3009	3019
NSG 3011	1653
NSG 3012	3202
NSG 3013	2169
NSG 3015	1928
NSG 3016	3203
NSG 3017	2459
NSG 3018	1866
NSG 3019	2862
NSG 3022	3080
NSG 3023	3149
NSG 3024	3081
NSG 3027	3020
NSG 3028	1429
NSG 3029	2074
NSG 3030	1974
NSG 3031	3204
NSG 3032	3205
NSG 3033	2101
NSG 3034	1553
NSG 3035	2570
NSG 3036	1929
NSG 3037	2085
NSG 3038	1654
NSG 3039	1985
NSG 3040	3021
NSG 3041	2595
NSG 3042	1986
NSG 3043	2037

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NSG 3044	2460
NSG 3045	3082
NSG 3046	2461
NSG 3047	1554
NSG 3048	2086
NSG 3049	2197
NSG 3050	2817
NSG 3051	2951
NSG 3052	1930
NSG 3053	3022
NSG 3054	3120
NSG 3055	1555
NSG 3058	3023
NSG 3059	2883
NSG 3060	1655
NSG 3061	2462
NSG 3062	3024
NSG 3063	3092
NSG 3064	2463
NSG 3065	1222
NSG 3066	3083
NSG 3067	3104
NSG 3068	3494
NSG 3069	2758
NSG 3071	2075
NSG 3072	2921
NSG 3073	3653
NSG 3074	3025
NSG 3075	1079
NSG 3076	2464
NSG 3077	3026
NSG 3078	3027
NSG 3079	2465
NSG 3080	2863
NSG 3081	2571
NSG 3082	1494
NSG 3084	3093
NSG 3085	3028
NSG 3086	1656
NSG 3087	2145
NSG 3088	2466
NSG 3089	3450
NSG 3090	3153
NSG 3091	3084
NSG 3092	2760
NSG 3093	2467
NSG 3094	2596
NSG 3095	2926
NSG 3096	1891
NSG 3097	3206
NSG 3098	2038
NSG 3099	3094
NSG 3100	2793
NSG 3101	2507
NSG 3102	2468
NSG 3103	1556
NSG 3104	3608
NSG 3105	2076
NSG 3106	1931
NSG 3107	1746
NSG 3108	2901
NSG 3109	1027
NSG 3111	2629
NSG 3112	3361
NSG 3113	2650
NSG 3114	2170
NSG 3115	3029
NSG 3116	1495
NSG 3117	2113
NSG 3118	3248
NSG 3119	2077
NSG 3120	1867
NSG 3121	3095
NSG 3122	1631
NSG 3123	2975
NSG 3124	1365
NSG 3125	2171
NSG 3126	3030
NSG 3127	1657
NSG 3128	3154
NSG 3129	2469
NSG 3130	1791
NSG 3131	3031
NSG 3132	1966
NSG 3133	2087
NSG 3134	3693
NSG 3135	2078
NSG 3136	3142
NSG 3137	2502
NSG 3138	2927
NSG 3139	3096
NSG 3140	3032
NSG 3141	1979
NSG 3142	3033
NSG 3143	1987
NSG 3144	3040
NSG 3145	1658
NSG 3146	3481
NSG 3147	3085
NSG 3148	2554
NSG 3149	1988
NSG 3150	1557
NSG 3151	3034
NSG 3152	3677
NSG 3153	1496
NSG 3154	1034
NSG 3155	3041
NSG 3156	3097
NSG 3157	2979
NSG 3159	3043
NSG 3160	2980
NSG 3161	2555
NSG 3162	3172
NSG 3163	3235
NSG 3167	1659
NSG 3168	3236
NSG 4001	1497
NSG 4002	1366
NSG 4003	2079
NSG 4006	2146
NSG 4007	2147
NSG 4008	2148
NSG 4009	2149
NSG 4011	1223
NSG 4012	2150
NSG 4013	3128
NSG 4014	1209
NSG 5002	3304
NSG 5005	3451
NSG 5008	3175
NSG 5009	2205
NSG 5010	2080
NSG 5011	1660
NSG 5012	1932
NSG 5013	2789
NSG 5014	2683
NSG 5015	2952
NSG 5016	1810
NSG 5017	2278
NSG 5022	1125
NSG 5023	1126
NSG 5025	2088
NSG 5032	2884
NSG 5034	2885
NSG 5035	2279
NSG 5039	3678
NSG 5042	2280
NSG 5043	1127
NSG 5045	2886
NSG 5047	2281
NSG 5048	2282
NSG 5049	2039
NSG 5051	2206
NSG 5053	3583
NSG 5054	2971
NSG 5055	2319
NSG 5056	1498
NSG 5057	1430
NSG 5058	1193
NSG 5059	2283
NSG 5060	2864
NSG 5063	2722
NSG 5065	2220
NSG 5066	1763
NSG 5067	2221
NSG 5068	2012
NSG 5070	1499
NSG 5071	1811
NSG 5072	2818
NSG 5073	1661
NSG 5074	2231
NSG 5075	1738
NSG 5076	2470
NSG 5077	2965

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NSG 5078	2222
NSG 5079	2819
NSG 5080	2820
NSG 5081	1812
NSG 5082	1933
NSG 5083	2284
NSG 5084	2285
NSG 5085	3475
NSG 5086	2151
NSG 5087	3476
NSG 5088	2597
NSG 5089	1558
NSG 5090	2223
NSG 5092	1454
NSG 5093	1431
NSG 5094	2286
NSG 5095	2471
NSG 5096	1967
NSG 5097	2556
NSG 5098	1695
NSG 5099	2348
NSG 5100	3723
NSG 5101	2120
NSG 5102	2953
NSG 5103	1696
NSG 5104	1813
NSG 5105	1662
NSG 5106	1581
NSG 5107	1764
NSG 5108	1630
NSG 5109	1792
NSG 5110	1849
NSG 5111	1765
NSG 5112	2287
NSG 5113	2472
NSG 5114	1432
NSG 5116	1868
NSG 5117	2557
NSG 5118	2821
NSG 5119	2224
NSG 5120	2988
NSG 5121	2288
NSG 5122	1824
NSG 5123	2289
NSG 5124	1697
NSG 5125	2954
NSG 5126	3724
NSG 5127	1814
NSG 5128	2349
NSG 5129	2290
NSG 5130	2887
NSG 5131	1367
NSG 5132	1368
NSG 5133	2888
NSG 5134	3390
NSG 5135	1728
NSG 5136	3035
NSG 5137	2291
NSG 5139	2558
NSG 5140	3067
NSG 5141	3068
NSG 5142	3679
NSG 5143	2350
NSG 5144	1757
NSG 5145	2684
NSG 5146	2822
NSG 5147	1698
NSG 5149	1500
NSG 5150	2473
NSG 5151	2652
NSG 5152	3725
NSG 5153	1699
NSG 5154	3452
NSG 5155	1582
NSG 5156	3391
NSG 5157	2474
NSG 5158	1815
NSG 5159	1968
NSG 5160	2351
NSG 5161	2225
NSG 5162	3155
NSG 5163	2823
NSG 5164	1433
NSG 5165	1501
NSG 5166	2475
NSG 5167	3453
NSG 5168	2824
NSG 5169	1502
NSG 5170	1583
NSG 5171	2559
NSG 5172	2292
NSG 5173	1766
NSG 5174	2293
NSG 5176	2352
NSG 5177	2294
NSG 5178	1700
NSG 5179	1739
NSG 5180	3726
NSG 5181	3727
NSG 5183	3098
NSG 5184	2226
NSG 5185	3207
NSG 5186	1816
NSG 5187	2662
NSG 5188	3330
NSG 5189	2560
NSG 5190	1503
NSG 5191	2353
NSG 5192	1825
NSG 5193	3392
NSG 5194	2825
NSG 5195	2731
NSG 5196	1989
NSG 5197	1194
NSG 5198	3513
NSG 5199	2102
NSG 5200	2826
NSG 5201	1434
NSG 5202	2013
NSG 5204	2476
NSG 5205	3208
NSG 5206	2561
NSG 5207	3099
NSG 5208	1195
NSG 5209	2295
NSG 5210	2227
NSG 5211	1701
NSG 5212	3209
NSG 5213	2040
NSG 5214	3488
NSG 6003	1819
NSG 6004	3210
NSG 6005	2598
NSG 6006	2311
NSG 6007	3156
NSG 6008	3417
NSG 6009	2599
NSG 6010	2296
NSG 6011	3237
NSG 6012	3477
NSG 6013	2694
NSG 6014	1071
NSG 6015	1758
NSG 6016	2312
NSG 6017	2313
NSG 7002	1504
NSG 7003	2955
NSG 7005	2600
NSG 7010	2477
NSG 7011	1128
NSG 7015	3351
NSG 7016	2663
NSG 7019	1080
NSG 7020	1129
NSG 7022	3007
NSG 7024	1130
NSG 7026	1230
NSG 7027	1559
NSG 7029	1369
NSG 7032	3352
NSG 7034	3478
NSG 7035	3036
NSG 7036	2956
NSG 7037	3393
NSG 7038	3509
NSG 7039	1980
NSG 7040	1081
NSG 7041	3100
NSG 7043	3353
NSG 7044	2041
NSG 7045	1131
NSG 7046	2297
NSG 7048	2478
NSG 7049	3305

NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NSG 7050	3728
NSG 7051	1072
NSG 7052	1505
NSG 7053	2723
NSG 7055	2228
NSG 7063	2320
NSG 7065	2917
NSG 7069	1934
NSG 7070	1132
NSG 7071	2938
NSG 7072	3748
NSG 7073	3523
NSG 7076	3257
NSG 7077	2479
NSG 7078	3211
NSG 7080	2724
NSG 7081	2480
NSG 7083	3749
NSG 7084	1196
NSG 7085	3680
NSG 7087	2664
NSG 7089	3690
NSG 7091	2481
NSG 7092	1370
NSG 7093	2928
NSG 7094	1197
NSG 7095	2354
NSG 7096	3258
NSG 7100	1560
NSG 7101	1133
NSG 7102	1561
NSG 7105	2827
NSG 7106	1153
NSG 7108	2601
NSG 7110	1371
NSG 7114	1134
NSG 7116	2889
NSG 7117	1372
NSG 7118	2482
NSG 7119	3220
NSG 7120	3212
NSG 7121	1562
NSG 7125	1198
NSG 7126	2865
NSG 7127	1435
NSG 7128	1702
NSG 7129	1199
NSG 7130	1703
NSG 7133	3729
NSG 7138	3101
NSG 7139	1436
NSG 7141	1613
NSG 7142	1135
NSG 7143	1869
NSG 7144	2790
NSG 7145	1793
NSG 7146	1136
NSG 7147	3238
NSG 7150	2957
NSG 7151	1573
NSG 7152	1437
NSG 7154	2503
NSG 7155	1200
NSG 7156	2866
NSG 7157	3354
NSG 7158	1506
NSG 7159	3454
NSG 7160	1201
NSG 7161	1563
NSG 7162	3455
NSG 7163	3757
NSG 7164	1507
NSG 7165	1704
NSG 7166	1705
NSG 7167	2081
NSG 7168	1137
NSG 7169	2890
NSG 7170	2794
NSG 7172	3747
NSG 7173	3681
NSG 7174	3682
NSG 7175	2355
NSG 7176	2356
NSG 7178	3129
NSG 7179	1969
NSG 7180	1508
NSG 7184	2918
NSG 7186	2483
NSG 7187	2562
NSG 7189	3394
NSG 7190	2315
NSG 7191	2357
NSG 7192	3755
NSG 7193	3213
NSG 7194	2828
NSG 7195	1202
NSG 7196	2298
NSG 7198	3418
NSG 7200	2829
NSG 7201	1138
NSG 7202	1203
NSG 7203	3239
NSG 7204	1373
NSG 7205	1438
NSG 7206	3510
NSG 7207	3739
NSG 7208	1457
NSG 7209	2563
NSG 7210	3511
NSG 7212	2014
NSG 7214	3689
NSG 7215	3730
NSG 7216	1155
NSG 7217	1082
NSG 7219	3743
NSG 7220	1439
NSG 7221	2602
NSG 7222	2929
NSG 7223	3745
NSG 7224	1706
NSG 7225	2958
NSG 7226	3505
NSG 7227	2484
NSG 7228	3419
NSG 7229	1219
NSG 7230	2930
NSG 7231	1707
NSG 7232	3456
NSG 7234	1236
NSG 7235	2867
NSG 7236	1870
NSG 7237	2603
NSG 7238	1139
NSG 7239	1509
NSG 7241	2931
NSG 7242	1892
NSG 7243	2868
NSG 7244	1156
NSG 7245	1885
NSG 7246	1140
NSG 7247	2020
NSG 7248	2830
NSG 7249	1141
NSG 7250	3457
NSG 7252	2299
NSG 7253	2300
NSG 7254	2321
NSG 7255	1083
NSG 7256	2725
NSG 7257	2114
NSG 7259	2604
NSG 7260	2301
NSG 7261	1220
NSG 7262	1440
NSG 7263	1221
NSG 7264	3754
NSG 7265	1142
NSG 7266	3609
NSG 7267	1895
NSG 7268	2869
NSG 7269	1939
NSG 7270	2959
NSG 7271	1729
NSG 7272	3741
NSG 7273	2485
NSG 7274	1759
NSG 7275	1204
NSG 7276	1510
NSG 7277	1441
NSG 7278	2082
NSG 7279	2564
NSG 7280	2726
NSG 7281	1073
NSG 7282	1511

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NASA'S UNIVERSITY PROGRAM
APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

GRANT/ CONTRACT NUMBER	ACC NO.
NSG 7283	2727
NSG 7284	2302
NSG 7285	2303
NSG 7286	2960
NSG 7287	1708
NSG 7288	2015
NSG 7289	3512
NSG 7290	1747
NSG 7291	1709
NSG 7292	2685
NSG 7293	2508
NSG 7294	1564
NSG 7295	1512
NSG 7296	2605
NSG 7297	2486
NSG 7298	3333
NSG 7299	1871
NSG 7300	3420
NSG 7301	3102
NSG 7302	2728
NSG 7303	2016
NSG 7304	2358
NSG 7308	2565
NSG 7309	1886
NSG 7310	1970
NSG 7311	3751
NSG 7312	1971
NSG 7313	3683
NSG 7314	1215
NSG 7315	1513
NSG 7316	1205
NSG 7317	3750
NSG 7318	3684
NSG 7319	1710
NSG 7320	2961
NSG 7321	2902
NSG 7322	2304
NSG 7323	1972
NSG 7324	2870
NSG 7325	2314
NSG 7326	3458
NSG 7327	2732
NSG 7328	2487
NSG 7329	2488
NSG 7330	1614
NSG 7331	2489
NSG 7332	2359
NSG 7333	1143
NSG 7334	2665
NSG 7335	1514
NSG 7336	1442
NSG 7337	1844
NSG 7338	2490
NSG 7339	2491
NSG 7340	2305
NSG 7341	1515
NSG 7342	1144
NSG 7343	3316
NSG 7344	1711
NSG 7345	2919
NSG 7346	2759
NSG 7347	3459
NSG 7348	2871
NSG 7349	3740
NSG 7350	3214
NSG 7351	2152
NSG 7352	3072
NSG 7353	2932
NSG 7354	1730
NSG 7355	3614
NSG 7356	2017
NSG 7357	2185
NSG 7358	1145
NSG 7359	2973
NSG 7360	3135
NSG 7361	3355
NSG 7362	3356
NSG 7363	3460
NSG 7364	3610
NSG 7365	2306
NSG 7366	2972
NSG 7368	1146
NSG 7369	2920
NSG 7370	3395
NSG 7372	2666
NSG 7374	1147
NSG 7375	1458
NSG 7376	1206
NSG 7379	2729
NSG 8001	1002
NSG 8002	1948
NSG 8003	1035
NSG 8009	2630
NSG 8012	3271
NSG 8014	1940
NSG 8019	1893
NSG 8020	1941
NSG 8025	2190
NSG 8026	2611
NSG 8027	1947
NSG 8028	2191
NSG 8029	2192
NSG 8030	1942
NSG 8031	1872
NSG 8032	3272
NSG 8033	1003
NSG 8034	2180
NSG 8035	3265
NSG 8036	2609
NSG 8037	1004
NSG 8038	1036
NSG 8039	1943
NSG 8040	2933
NSG 8041	1005
NSG 8042	1006
NSG 8043	1944
NSG 8044	3253
NSG 8045	2987
NSG 8046	2153
NSG 8047	1028
NSG 8048	1950
NSG 8049	1945
NSG 8050	2200
NSG 8051	1007
NSG 8053	2193
NSG 8054	1037
NSG 8055	2651
NSG 8057	1008
NSG 9006	3337
NSG 9010	1817
NSG 9011	3221
NSG 9013	2962
NSG 9016	2612
NSG 9019	1207
NSG 9020	1584
NSG 9021	3461
NSG 9026	3484
NSG 9028	2934
NSG 9030	2194
NSG 9032	3685
NSG 9033	3334
NSG 9036	1712
NSG 9037	1663
NSG 9038	3331
NSG 9039	3357
NSG 9042	3421
NSG 9043	3422
NSG 9044	2963
NSG 9045	1664
NSG 9046	2494
NSG 9047	2566
NSG 9048	1565
NSG 9049	3485
NSG 9050	2606
NSG 9051	1733
NSG 9052	3686
NSG 9053	3335
NSG 9054	2360
NSG 9055	2667
NSG 9056	3240
NSG 9057	2492
NSG 9059	2795
NSG 9060	2115
NSR 24-005-245	2607
NSR 31-001-901	2730
S-55672A	1887
W-14133	2042
W-14168	3103
W-14206	1873

NASA'S UNIVERSITY PROGRAM
APPENDIX B
CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

PHYSICAL SCIENCES

11 ASTRONOMY
12 CHEMISTRY
13 PHYSICS
19 PHYSICAL SCIENCES, NEC*

MATHEMATICS/COMP SCI

21 MATHEMATICS
22 COMPUTER SCIENCES

ENVIRONMENTAL SCIENCES (Terrestrial and extraterrestrial)

31 ATMOSPHERIC SCIENCES
32 GEOLOGICAL SCIENCES
33 OCEANOGRAPHY
39 ENVIRONMENTAL SCIENCES, NEC*

ENGINEERING

41 AERONAUTICAL
42 ASTRONAUTICAL
43 CHEMICAL
44 CIVIL
45 ELECTRICAL
46 MECHANICAL
47 METALLURGY AND MATERIALS
49 ENGINEERING, NEC*

LIFE SCIENCES

51 BIOLOGY
52 CLINICAL MEDICAL
53 OTHER MEDICAL
59 LIFE SCIENCES, NEC*

PSYCHOLOGICAL

61 BIOLOGICAL
62 SOCIAL ASPECTS
69 PSYCHOLOGICAL, NEC*

SOCIAL SCIENCES

71 ANTHROPOLOGY
72 ECONOMICS
73 HISTORY
74 LINGUISTICS
75 POLITICAL SCIENCE
76 SOCIOLOGY
79 SOCIAL SCIENCE, NEC*

*OTHER SCIENCES***

99 ALL DISCIPLINE(S)

*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)
**For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	ALABAMA A&M UNIV	Parnell, T. A.	MSFC	George, M. C.	NSG 8001	1002
11	AMERICAN UNIVERSITY	Brunk, W. E.	HQ-SL	Prakash, A.	NSG 7274	1759
11	BOSTON UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Adelman, S. J.	NSG 5055	2319
11	BOWIE STATE COLLEGE	Boldt, E. A.	GSFC	Tornabene, H. S.	NGR 21-027-001	2201
11	BOWLING GRN STATE U	Roman, N. G.	HQ-SA	Ptak, R. L.	NSG 7022	3007
11	BRIGHAM YOUNG UNIV	Brunk, W. E.	HQ-SL	Jones, D. E.	NGR 45-001-032	3493
11	CALIF INST OF TECH	Hall, C. F.	ARC	Munch, G.	NAS 2-6556	1159
11	CALIF INST OF TECH	Gillespie, C. M., Jr.	ARC	Werner, M. W.	NGR 05-002-281	1186
11	CALIF INST OF TECH	Hymowitz, E. W.	GSFC	Neugebauer, G.	NAS 5-22555	1162
11	CALIF INST OF TECH	Neupert, W. M.	GSFC	Zirin, H.	NAS 5-22939	1163
11	CALIF INST OF TECH	Wrublik, D. P.	GSFC	Garmire, G. P.	NAS 5-23315	1165
11	CALIF INST OF TECH	Weinreb, M. B.	GSFC	Garmire, G. P.	NAS 5 23615	1166
11	CALIF INST OF TECH	Bensimon, M.	GSFC	Leighton, R. B.	NAS 5-23696	1167
11	CALIF INST OF TECH	Bissell, E. E.	GSFC	Garmire, G. P.	NGR 05-002-284	1187
11	CALIF INST OF TECH	Kupperian, J. E., Jr.	GSFC	Garmire, G. P.	NSG 5197	1194
11	CALIF INST OF TECH	Kupperian, J. E., Jr.	GSFC	Neugebauer, G.	NSG 5208	1195
11	CALIF INST OF TECH	Krome, H. O.	MSFC	Stone, E. C.	NAS 8-27978	1169
11	CALIF INST OF TECH	Rosendahl, J. D.	HQ-SA	Kasten, R.	NGL 05-002-134	1175
11	CALIF INST OF TECH	Boggess, N. W.	HQ-SA	Neugebauer, G.	NGL 05-002-207	1179
11	CALIF INST OF TECH	Sofia, S.	HQ-SA	Vogt, R. E.	NGR 05-002-160	1184
11	CALIF INST OF TECH	Boggess, N. W.	HQ-SA	Thorne, K. S.	NGR 05-002-256	1185
11	CALIF INST OF TECH	Roman, N. G.	HQ-SA	Christysackmann, I. J.	NSG 7195	1202
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Muhleman, D. O.	NGL 05-002-003	1171
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Munch, G.	NGL 05-002-140	1176
11	CALIF INST OF TECH	Brunk, W. E.	HQ-SL	Muhleman, D. O.	NGR 05-002-114	1181
11	CALIF INST OF TECH	Timothy, A. F	HQ-ST	Zirin, H.	NGL 05-002-034	1172
11	CASE WESTERN RESERVE	Kupperian, J. E., Jr.	GSFC	Bidelman, W. P.	NSG 5136	3035
11	CITY COLLEGE OF N Y	Canuto, V.	GSFC	Erlbach, E.	NGL 33-013-040	2785
11	COLUMBIA UNIVERSITY	Laudadio, J. F.	GSFC	Novick, R.	NAS 5-22890	2798
11	COLUMBIA UNIVERSITY	Weinreb, M. B.	GSFC	Novick, R.	NAS 5-23623	2800

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	COLUMBIA UNIVERSITY	Bissell, E. E.	GSFC	Novick, R.	NGR 33-008-102	2809
11	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Hartmann, S. R.	NGR 33-008-191	2813
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr	GSFC	Wolff, R. S.	NSG 5079	2819
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Wolff, R. S.	NSG 5118	2821
11	COLUMBIA UNIVERSITY	Thaddeus, P.	GSFC	Broecker, W. S.	NSG 5163	2823
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Hayes, D. P.	NSG 5168	2824
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Novick, R.	NSG 5194	2825
11	COLUMBIA UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Novick, R.	NSG 5200	2826
11	COLUMBIA UNIVERSITY	Manning, H. S.	MSFC	Novick, R.	NAS 8-30753	2806
11	COLUMBIA UNIVERSITY	Boggess, N. W.	HQ-SA	Zare, R.	NSG 7105	2827
11	COLUMBIA UNIVERSITY	Sofia, S.	HQ-SA	Weisskopf, M. C.	NSG 7248	2830
11	COLUMBIA UNIVERSITY	Cauffman, D. P.	HQ-ST	Wolff, R. S.	NGR 33-008-183	2812
11	CONCORDIA COL-MOORHD	Berg, O. E.	GSFC	Bailey, C. F.	NAS 5-23557	2572
11	CORNELL UNIVERSITY	Pollack, J. B.	ARC	Burns, J. A.	NCA 2-175701	2838
11	CORNELL UNIVERSITY	Gillespie, C. M., Jr	ARC	Houck, J. R.	NGR 33-010-081	2844
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Harwit, M. O.	NGR 33-010-146	2849
11	CORNELL UNIVERSITY	Cameron, R. M.	ARC	Houck, J. R.	NGR 33-010-182	2853
11	CORNELL UNIVERSITY	Gillespie, C. M., Jr.	ARC	Elliot, J. L.	NSG 2174	2861
11	CORNELL UNIVERSITY	Hymowitz, E. W.	GSFC	Houck, J. R.	NAS 5-22586	2833
11	CORNELL UNIVERSITY	Opp, A. G.	HQ-SA	Greisen, K. I.	NGR 33-010-145	2848
11	CORNELL UNIVERSITY	Boggess, N. W.	HQ-SA	Harwit, M. O.	NGR 33-010-172	2851
11	CORNELL UNIVERSITY	Boggess, N. W.	HQ-SA	Houck, J. R.	NSG 7324	2870
11	CORNELL UNIVERSITY	Brunk, W. E.	HQ-SL	Veverka, J.	NSG 7126	2865
11	FLORIDA STATE UNIV	Brunk, W. E.	HQ-SL	Hunt, R. H.	NGR 10-004-056	1841
11	FLORIDA TECH UNIV	Hobbs, R. W.	GSFC	Katzin, J. C.	NSG 5110	1849
11	HARVARD UNIVERSITY	Hall, C. F.	ARC	Goody, R. M.	NAS 2-9127	2324
11	HARVARD UNIVERSITY	Underhill, A. B.	GSFC	Dupree, A. K.	NAS 5-23371	2327
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5099	2348
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Flannery, B. P.	NSG 5143	2350
11	HARVARD UNIVERSITY	Kupperian, J. E., Jr.	GSFC	Dupree, A. K.	NSG 5191	2353
11	HARVARD UNIVERSITY	Unavailable	MSFC	Goldberg, L.	NAS 5-3949	2325
11	HARVARD UNIVERSITY	Carter, C. H.	HQ-P	Field, G. B.	NSG 7176	2356
11	HARVARD UNIVERSITY	Boggess, N. W.	HQ-SA	Fazio, G. G.	NGR 22-007-270	2343
11	HARVARD UNIVERSITY	Opp, A. G.	HQ-SA	Cameron, A. G.	NGR 22-007-272	2344
11	HARVARD UNIVERSITY	Brunk, W. E.	HQ-SL	Goody, R. M.	NSG 7332	2359
11	HARVARD UNIVERSITY	Timothy, A. F.	HQ-ST	Parkinson, W. H.	NGR 22-007-202	2340
11	HOUSTON BAPTIST UNIV	Kupperian, J. E., Jr	GSFC	Morgan, T. H	NSG 5188	3330
11	HOUSTON BAPTIST UNIV	Kondo, Y.	JSC	Modisette, J. L.	NGR 44-081-001	3328
11	HOUSTON BAPTIST UNIV	Kondo, Y.	JSC	Modisette, J. L.	NGR 44-081-005	3329
11	HOUSTON BAPTIST UNIV	Potter, A. E.	JSC	Morgan, T. H.	NSG 9038	3331
11	INDIANA U-BLOOMINGTN	Hobbs, R. W.	GSFC	Burkhead, M. S.	NAS 5-22987	2046
11	INDIANA U-BLOOMINGTN	Rosendhal, J. D.	HQ-SA	Johnson, H. R.	NGL 15-003-002	2050
11	IOWA STATE UNIV	Pollack, J. B.	ARC	Grossman, A. S.	NCA 2-340703	2090
11	IOWA STATE UNIV	Jupperian, J. E., Jr.	GSFC	Lamb, R. C.	NSG 5199	2102
11	JOHNS HOPKINS UNIV	Boggess, A.	GSFC	stie, W. G.	NAS 5-23316	2210
11	JOHNS HOPKINS UNIV	Bensimon, M.	GSFC	Fastie, W. G.	NAS 5-23695	2211
11	JOHNS HOPKINS UNIV	Wilson, L.	GSFC	Fastie, W. G.	NAS 5-24236	2213
11	JOHNS HOPKINS UNIV	Bissell, E. E.	GSFC	Fastie, W. G.	NGR 21-001-001	2216
11	JOHNS HOPKINS UNIV	Maran, S. P.	GSFC	Feldman, P. D.	NSG 5065	2220
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Moos, H. W	NSG 5067	2221
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Henry, R. C.	NSG 5078	2222
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Henry, R. C.	NSG 5119	2224
11	JOHNS HOPKINS UNIV	Kupperian, J. E., Jr.	GSFC	Moos, H. W.	NSG 5184	2226
11	LEHIGH UNIVERSITY	Kondo, Y.	JSC	McCluskey, G. E., Jr.	NGR 39-007-061	3170
11	LA STATE U-SHREVEPT	Giuli, R. T.	JSC	Moss, T. A.	NAS 9-9317	2184
11	MASS INST OF TECH	Hall, C. F.	ARC	Shapiro, I. I.	NAS 2-9132	2366
11	MASS INST OF TECH	Raymos, R.	ARC	Counselman, C. C., III	NAS 2-9151	2367
11	MASS INST OF TECH	Hall, C. F.	ARC	Tettingill, G.	NAS 2-9473	2369

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	MASS INST OF TECH	Hall, C. F.	ARC	Pettengill, G.	NAS 2-9476	2370
11	MASS INST OF TECH	Gillespie, C. M., Jr.	ARC	Kleinman, S. G.	NSG 2172	2454
11	MASS INST OF TECH	Piterski, N. J.	GSFC	Clark, G. W.	NAS 5-11450	2373
11	MASS INST OF TECH	Weinreb, M. B.	GSFC	Bradt, H. V.	NAS 5-23624	2377
11	MASS INST OF TECH	Weinreb, M. B.	GSFC	Rappaport, S. A.	NAS 5-23658	2378
11	MASS INST OF TECH	Shute, J.	GSFC	Staelin, D. H.	NAS 5-23677	2379
11	MASS INST OF TECH	Mather, J. C.	GSFC	Weiss, R.	NAS 5-24096	2380
11	MASS INST OF TECH	Bissell, E. E.	GSFC	Bradt, H. V.	NGR 22-009-730	2422
11	MASS INST OF TECH	Hansen, J. E.	GSFC	Rivas, E. K.	NSG 5076	2470
11	MASS INST OF TECH	Stone, R. G.	GSFC	Burke, B. F.	NSG 5150	2473
11	MASS INST OF TECH	Bodie, W. G.	MSFC	Bradt, H. V.	NAS 8-27972	2382
11	MASS INST OF TECH	Jordan, W.	MSFC	Lewin, W. H.	NAS 8-27975	2383
11	MASS INST OF TECH	Manning, H. S.	MSFC	Clark, G. W.	NAS 8-30752	2386
11	MASS INST OF TECH	Boggess, N. W.	HQ-SA	Weiss, R.	NGR 22-009-526	2412
11	MASS INST OF TECH	Roman, N. G.	HQ-SA	Weiss, R.	NSG 7091	2481
11	MASS INST OF TECH	Boggess, N. W.	HQ-SA	Kleinmann, S.	NSG 7186	2483
11	MASS INST OF TECH	Boggess, N. W.	HQ-SA	Weiss, R.	NSG 7328	2487
11	MASS INST OF TECH	Sofia, S.	HQ-SA	Lewin, W. G.	NSG 7339	2491
11	MASS INST OF TECH	Smith, M. J.	HQ-SL	McCord, T. B.	NASW 3008	2394
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	McCord, T. B.	NGR 22-009-473	2411
11	MASS INST OF TECH	Fellows, R. F.	HQ-SL	McCord, T. B.	NGR 22-009-583	2415
11	MASS INST OF TECH	Brunk, W. E.	HQ-SL	Pettengill, G. H.	NGR 22-009-672	2418
11	MIDDLEBURY COLLEGE	Kupperian, J. E., Jr.	GSFC	Winkler, P. F.	NSG 5198	3513
11	MONTANA STATE UNIV	Roman, N. G.	HQ-SA	Nordtvedt, K., Jr.	NGR 27-001-040	2668
11	MORGAN STATE UNIV	Baker, G. R.	GSFC	Hammond, E. C., Jr.	NSG 5074	2231
11	NEW MEX INST MINING	Maran, S. P.	GSFC	Hume, W.	NCA 5-58	2736
11	NEW MEX INST MINING	Maran, S. P.	GSFC	Hume, W.	NCA 5-59	2737
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E.	NCA 5-64	2738
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E	NCA 5-67	2739
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E.	NCA 5-68	2740
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E.	NCA 5-69	2741
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Moore, E.	NCA 5-71	2742
11	NEW MEX INST MINING	Hobbs, R. W.	GSFC	Ford, K. W	NCA 5-72	2743
11	NEW MEX ST U-LAS CR	Brunk, W. E.	HQ-SL	Beebe, R. F.	NGL 32-003-001	2756
11	NEW MEX ST U-LAS CR	Donn, B. D.	HQ-SL	Beebe, H. A.	NSG 7346	2759
11	NEW YORK UNIVERSITY	Hall, C. F.	ARC	Weinberg, J. L.	NAS 2-7963	2875
11	NEW YORK UNIVERSITY	Lazarus, A. J.	HQ-SA	Korff, S. A.	NSG 7116	2889
11	NORTHWESTERN UNIV	Kupperian, J. E., Jr.	GSFC	Ulmer, M. P	NSG 5196	1989
11	NORTHWESTERN UNIV	Roman, N. G	HQ-SA	Huang, S. S.	NGL 14-007 041	1981
11	OHIO STATE UNIV	Kupperian, J. E., Jr	GSFC	Collins, G. W., II	NSG 5140	3067
11	OHIO STATE UNIV	Kupperian, J. E., Jr.	GSFC	Slettebak, A.	NSG 5141	3068
11	PRINCETON UNIVERSITY	Sobieski, S.	GSFC	Lowrance, J. L.	NAS 5-20833	2698
11	PRINCETON UNIVERSITY	Sobieski, S.	GSFC	Schwarzschild, M.	NAS 5-22989	2700
11	PRINCETON UNIVERSITY	Tycz, M.	GSFC	Lowrance, J. L.	NAS 5-23386	2701
11	PRINCETON UNIVERSITY	Kelsall, T.	GSFC	Lowrance, J. L.	NAS 5-23387	2702
11	PRINCETON UNIVERSITY	Kupperian, J. E.	GSFC	Spitzer, L., Jr	NAS 5-23576	2703
11	PRINCETON UNIVERSITY	Mather, J. C.	GSFC	Wilkinson, D. T.	NAS 5-24100	2704
11	PRINCETON UNIVERSITY	Harris, J. W.	JSC	Hollister, L. S.	NGL 31-001-283	2711
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SA	Spitzer, L., Jr.	NGL 31-001-007	2708
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SA	Bahcall, N. A.	NSG 7256	2725
11	PRINCETON UNIVERSITY	Boggess, N. W.	HQ-SA	Wilkinson, D.	NSG 7302	2728
11	PRINCETON UNIVERSITY	Rosendahl, J. D.	HQ-SA	Schwarzschild, M	NSG 7379	2729
11	PRINCETON UNIVERSITY	Roman, N. G.	HQ-SA	Lowrance, J. L.	NSR 31-001-901	2730
11	PRINCETON UNIVERSITY	Brunk, W. E.	HQ-SL	Smith, W. H.	NGR 31-001-242	2713
11	PRINCETON UNIVERSITY	Brunk, W. E.	HQ-SL	Danielson, R. E.	NSG 7053	2723
11	PURDUE UNIVERSITY	Rosendhal, J. D.	HQ-SA	Moffett, T. J.	NSG 7167	2081
11	RICE UNIVERSITY	Ballance, C. W., Jr.	WFC	Anderson, H. R., Jr.	NAS 6-1667	3341
11	RICE UNIVERSITY	Sofia, S.	HQ-SA	Clayton, D. D.	NSG 7015	3351

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	RUTGERS U-N BRUNSWK	Kupperian, J. E., Jr.	GSFC	Matilsky, T. A.	NSG 5195	2731
11	SAN DIEGO STATE UNIV	Roosen, R. G.	GSFC	Angione, R. J.	NAS 5-23249	1228
11	SAN JOSE STATE UNIV	Blanchard, M. B.	ARC	Maddock, M. E.	NCA [illegible]-575612	1238
11	SAN JOSE STATE UNIV	Pollack, J. B.	ARC	Riegel, C. A.	NSG 2047	1247
11	SO UNIV-BATON ROUGE	Estabrook, F. B.	JPL	Yang, C. H.	NGR 19-005-006	2187
11	STANFORD UNIVERSITY	Lorell, K. R.	ARC	Powell, J. D.	NAS 2-9304	1273
11	STANFORD UNIVERSITY	Black, D. C.	ARC	Bracewell, R. N.	NCA 2-745716	1298
11	STANFORD UNIVERSITY	Weinreb, M. B.	GSFC	Walker, A. B., Jr.	NAS 5-23618	1278
11	STANFORD UNIVERSITY	Snoddy, W. C.	MSFC	Underwood, J. H.	NAS 8-32263	1282
11	STANFORD UNIVERSITY	Sofia, S.	HQ-SA	Hofstadter, R.	NGR 05-020-452	1321
11	STANFORD UNIVERSITY	Sofia, S.	HQ-SA	Sturrock, P. A.	NGR 05-020-668	1328
11	STANFORD UNIVERSITY	Roman, N. G.	HQ-SA	Will, C. M.	NSG 7204	1373
11	STANFORD UNIVERSITY	Timothy, A. F.	HQ-ST	Wilcox, J. M.	NGR 05-020-559	1323
11	STANFORD UNIVERSITY	Timothy, A. F.	HQ-ST	Sturrock, P. A.	NSG 7092	1370
11	STATE UNIV NY-ALBANY	Gary, G. A.	MSFC	Smith, W. H.	NSG 8040	2933
11	STATE UNIV NY-ALBANY	Roman, N. G.	HQ-SA	Weinberg, J. L.	NSG 7241	2931
11	STATE UNIV NY-ALBANY	Donn, B. D.	HQ-SL	Schuerman, D. W.	NSG 7353	2932
11	ST U NY COL-GENESEO	Roman, N. G.	HQ-SA	Meisel, D. D.	NGR 33-219-002	2964
11	STATE U NY-STONY BRK	Gillespie, C. M., Jr.	ARC	Simon, M.	NSG 2173	2956
11	STATE U NY-STONY BRK	Kerr, A. R.	GSFC	Kao, Y. H.	NSG 5125	2954
11	STATE U NY-STONY BRK	Opp, A. G.	HQ-SA	Forman, M. A.	NGR 33-015-180	2949
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Owen, T.	NGR 33-015-141	2945
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Knacke, R. F.	NSG 7286	2960
11	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Caldwell, J. J.	NSG 7320	2961
11	STATE U NY-STONY BRK	Bohlin, J. D.	HQ-ST	Stroke, G. W.	NSG 7003	2955
11	UNIV OF LEIDEN	Grant, T. L.	ARC	VanDerLaan, H.	NSG 7264	3754
11	UNIV ALA-HUNTSVILLE	Clifton, K. S.	MSFC	Stuhlinger, E.	NAS 8-32225	1054
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Gehrels, A. M.	NAS 2-6265	1086
11	UNIV OF ARIZONA	Hall, C. F.	ARC	Tomasko, M. G.	NAS 2-9486	1088
11	UNIV OF ARIZONA	Gillespie, C. M., Jr.	ARC	Larson, H. P.	NCA 2-40701	1101
11	UNIV OF ARIZONA	Gillespie, C. M., Jr.	ARC	Harper, H. P.	NGR 03-002-332	1118
11	UNIV OF ARIZONA	Gillespie, C. M., Jr.	ARC	Hoffman, W. F.	NGR 03-002-390	1122
11	UNIV OF ARIZONA	Billingham, J.	ARC	Serkowski, K. M	NSG 2205	1124
11	UNIV OF ARIZONA	Hymowitz, E. W.	GSFC	Low, F. J.	NAS 5-22599	1089
11	UNIV OF ARIZONA	Browning, R. K.	GSFC	Bowen, T.	NAS 5-23176	1090
11	UNIV OF ARIZONA	Wilson, L.	GSFC	Smith, B. A.	NAS 5-24308	1091
11	UNIV OF ARIZONA	Ma.an, S. P.	GSFC	Sonett, S. P.	NCA 5-62	1103
11	UNIV OF ARIZONA	Hansen, J. E.	GSFC	Gehrels, A. M.	NSG 5043	1127
11	UNIV OF ARIZONA	Miller, E. R.	MSFC	Sonett, C. P.	NAS 8-31192	1093
11	UNIV OF ARIZONA	Miller, E. R.	MSFC	Sonett, C. P.	NAS 8-31196	1094
11	UNIV OF ARIZONA	Griner, D. B.	MSFC	Slater, P. N.	NAS 8-32127	1097
11	UNIV OF ARIZONA	Roman, N. G.	HQ-SA	Bashkin, S.	NGL 03-002-017	1107
11	UNIV OF ARIZONA	Roman, N. G.	HQ-SA	Tifft, W. G.	NGL 03-002-032	1109
11	UNIV OF ARIZONA	[illegible]oggess, N. W.	HQ-SA	Low, F. J.	NGR 03-002-269	1117
11	UNIV OF ARIZONA	[illegible]oggess, N. W.	HQ-SA	Hoffman, W. F.	NGR 03-002-371	1120
11	UNIV OF ARIZONA	Opp, A. G.	HQ-SA	Jokippi, J.	NSG 7101	1133
11	UNIV OF ARIZONA	Roman, N. G.	HQ-SA	Gehrels, A. M.	NSG 7358	1145
11	UNIV OF ARIZONA	Boggess, N. W.	HQ-SA	Craine, E. R.	NSG 7368	1146
11	UNIV OF ARIZONA	Dwornik, S. E.	HQ-SL	Strom, R. G.	NASW 2944	1099
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Sonett, C. P.	NGL 03-002-002	1106
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Gehrels, T.	NGL 03-002-081	1110
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Roemer, E.	NGL 03-002-122	1111
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Gehrels, A. M.	NGR 03-002-219	1116
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Hubbard, W. B.	NSG 7045	1131
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Fink, U. W.	NSG 7070	1132
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Rieke, G. H.	NSG 7114	1134
11	UNIV OF ARIZONA	Brunk, W. E.	HQ-SL	Hubbard, W. B.	NSG 7238	1139
11	UNIV OF ARIZONA	Donn, B. D.	HQ-SL	Hsieh, K. C.	NSG 7374	1147

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	UNIV ARKANSAS-FAYETV	Rosendhal, J. D.	HQ-SA	Hughes, R. H.	NSG 7106	1153
11	UNIV CALIF-BERKELEY	Pollack, J. B.	ARC	Welch, W. J.	NCA 2-50702	1389
11	UNIV CALIF-BERKELEY	Gillespie, C. M., Jr.	ARC	Townes, C. H.	NGR 05-003-511	1411
11	UNIV CALIF-BERKELEY	Gillespie, C. M., Jr.	ARC	Muller, R. A.	NSG 2125	1422
11	UNIV CALIF-BERKELEY	Pollack, J. B.	ARC	Welch, W. J.	NSG 2211	1426
11	UNIV CALIF-BERKELEY	Weinreb, M. R.	GSFC	Bowyer, C. S.	NAS 5-23697	1379
11	UNIV CALIF-BERKELEY	Mather, J. C.	GSFC	Alvarez, L. W.	NAS 5-24105	1380
11	UNIV CALIF-BERKELEY	Willis, S. E.	GSFC	Bowyer, C. S.	NAS 5-24189	1383
11	UNIV CALIF-BERKELEY	Bissell, E. E.	GSFC	Bowyer, C. S.	NGR 05-003-450	1406
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, C. S.	NSG 5057	1430
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, C. S.	NSG 5114	1432
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Bowyer, C. S.	NSG 5164	1433
11	UNIV CALIF-BERKELEY	Kupperian, J. E., Jr.	GSFC	Shull, J. M.	NSG 5201	1434
11	UNIV CALIF-BERKELEY	Jex, D.	MSFC	Bowyer, S.	NAS 8-32577	1386
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-SA	Townes, C. H.	NGL 05-003-272	1398
11	UNIV CALIF-BERKELEY	Sofia, S.	HQ-SA	Price, P. B.	NGR 05-003-376	1405
11	UNIV CALIF-BERKELEY	Sofia, S.	HQ-SA	Heckman, H. H.	NGR 05-003-513	1412
11	UNIV CALIF-BERKELEY	Sofia, S.	HQ-SA	Alvarez, L. W.	NGR 05-003-553	1413
11	UNIV CALIF-BERKELEY	Roman, N. G.	HQ-SA	Silk, J. I.	NGR 05-003-578	1415
11	UNIV CALIF-BERKELEY	Rosendhal, J. D.	HQ-SA	Bowyer, C. S.	NSG 7139	1436
11	UNIV CALIF-BERKELEY	Boggess, N. W.	HQ-SA	Richards, P. L.	NSG 7205	1438
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-SL	Townes, C. H.	NGR 05-003-452	1408
11	UNIV CALIF-BERKELEY	Brunk, W. E.	HQ-SL	Silver, S.	NSG 7152	1437
11	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Coleman, P. J., Jr.	NAS 2-7251	1459
11	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Kaula, W. H.	NAS 2-9128	1461
11	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Schubert, G.	NAS 2-9131	1462
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr.	GSFC	Peters, C. J.	NSG 5056	1498
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr	GSFC	Jura, M. A.	NSG 5070	1499
11	UNIV CALIF-L ANGELES	Piterski, N. J.	GSFC	Margon, B. H.	NSG 5149	1500
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr.	GSFC	Margon, B. H.	NSG 5165	1501
11	UNIV CALIF-L ANGELES	Kupperian, J. E., Jr.	GSFC	Jura, M. A.	NSG 5169	1502
11	UNIV CALIF-L ANGELES	Sofia, S.	HQ-SA	Kennel, C. F.	NSG 7341	1515
11	UNIV CALIF-RIVERSIDE	Sofia, S.	HQ-SA	White, R. S.	NGR 05-008-022	1517
11	UNIV CALIF-SAN DIEGO	Hall, C. F.	ARC	Fillius, R. W.	NAS 2-6552	1518
11	UNIV CALIF-SAN DIEGO	Gillespie, C. M., Jr.	ARC	Soifer, B. T.	NGR 05-005-055	1539
11	UNIV CALIF-SAN DIEGO	Stouffer, C. G.	GSFC	Peterson, L. E.	NAS 5-22375	1520
11	UNIV CALIF-SAN DIEGO	Hymowitz, E. W.	GSFC	Soifer, B. T.	NAS 5-22556	1521
11	UNIV CALIF-SAN DIEGO	Bartlett, R. O.	GSFC	McIlwain, C. E.	NAS 5-23481	1522
11	UNIV CALIF-SAN DIEGO	Sobieski, S.	GSFC	Beaver, E. A.	NGR 05-009-239	1547
11	UNIV CALIF-SAN DIEGO	Jordan, W. E.	MSFC	Peterson, L. E.	NAS 8-27974	1525
11	UNIV CALIF-SAN DIEGO	Stanley, R.	WFC	Hendershott, M.	NAS 6-2506	1524
11	UNIV CALIF-SAN DIEGO	Rosendhal, J. D.	HQ-SA	Gould, R. J	NGL 05-005-004	1530
11	UNIV CALIF-SAN DIEGO	Roman, N. G.	HQ-SA	McIlwain, C. E	NGR 05-009-188	1544
11	UNIV CALIF-SAN DIEGO	Sofia, S.	HQ-SA	Peterson, L. E.	NSG 7294	1564
11	UNIV CALIF-SAN DIEGO	Donn, B. D.	HQ-SL	Alfven, H.	NGR 05-009-110	1543
11	UNIV CALIF-S CRUZ	Boggess, N. W.	HQ-SA	Rank, D. M.	NGR 05-061-015	1585
11	UNIV OF CHICAGO	Hall, C. F.	ARC	Simpson, J. A.	NAS 2-6551	1992
11	UNIV OF CHICAGO	Cameron, R. M.	ARC	Harper, D. A., Jr.	NGR 14-001-211	2007
11	UNIV OF CHICAGO	Gillespie, C. M., Jr.	ARC	Harper, D. A., Jr.	NGR 14-001-227	2009
11	UNIV OF CHICAGO	Gillespie, C. M., Jr	ARC	Hildebrand, R. H.	NSG 2057	2011
11	UNIV OF CHICAGO	Kupperian, J. E., Jr	GSFC	Parker, E. N.	NSG 5068	2012
11	UNIV OF CHICAGO	Kupperian, J. E., Jr.	GSFC	Simpson, J. A.	NSG 5202	2013
11	UNIV OF CHICAGO	Sofia, S.	HQ-SA	Parker, E. N.	NGL 14-001-001	1995
11	UNIV OF CHICAGO	Sofia, S.	HQ-SA	Meyer, P.	NGL 14-001-005	1996
11	UNIV OF CHICAGO	Sofia, S.	HQ-SA	Simpson, J. A.	NGL 14-001-006	1997
11	UNIV OF CHICAGO	Roman, N. G.	HQ-SA	Hobbs, L. M.	NGR 14-001-147	2005
11	UNIV OF CINCINNATI	Brunk, W. E.	HQ-SL	Herget, P.	NGR 36-004-075	3076
11	UNIV COLORADO-BOLDR	Underhill, A. B.	GSFC	Conti, P. S.	NAS 5-22833	1672

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NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	UNIV COLORADO-BOLDR	Boggess, A.	GSFC	Linsky, J. L.	NAS 5-23274	1673
11	UNIV COLORADO-BOLDR	Alexander, J. K.	GSFC	Warwick, J. W.	NAS 5-23771	1674
11	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Lillie, C. F.	NGR 06-003-176	1686
11	UNIV COLORADO-BOLDR	Kupperian, J. E., Jr.	GSFC	Conti, P. S.	NSG 5098	1695
11	UNIV COLORADO-BOLDR	Kupperian, J. E., Jr.	GSFC	Barlow, M. J.	NSG 5147	1698
11	UNIV COLORADO-BOLDR	Kupperian, J. E., Jr.	GSFC	Linsky, J. L.	NSG 5211	1701
11	UNIV COLORADO-BOLDR	Bass, B. G.	MSFC	Dulk, G. A.	NAS 8-32364	1678
11	UNIV COLORADO-BOLDR	Rosendhal, J. D.	HQ-SA	Laurence, G. M.	NASW 2913	1679
11	UNIV COLORADO-BOLDR	Roman, N. G.	HQ-SA	Lillie, C. F.	NGR 06-003-179	1687
11	UNIV COLORADO-BOLDR	Sofia, S.	HQ-SA	McCray, R.	NSG 7128	1702
11	UNIV COLORADO-BOLDR	Timothy, A. F.	HQ-ST	Barth, C. A.	NGR 06-003-069	1684
11	UNIV DC-MT VERNON SQ	Webster, W. H., Jr.	GSFC	Nottingham, W. C.	NGR 09-050-003	1821
11	UNIV DC-VAN NESS	Hobbs, R. W.	GSFC	Kasten, R.	NCA 5-77	1827
11	UNIV OF DELAWARE	Kupperian, J. E., Jr	GSFC	Shipman, H. L.	NSG 5144	1757
11	UNIV OF DENVER	Kupperian, J. E., Jr.	GSFC	Everhart, E.	NSG 5135	1728
11	UNIV OF FLORIDA	Kupperian, J. E., Jr.	GSFC	Chen, K. W.	NSG 5116	1868
11	UNIV OF FLORIDA	Roman, N. G.	HQ-SA	Carr, T. D.	NSG 7143	1869
11	UNIV OF HAWAII-MANOA	Bissell, E. E.	GSFC	McAllister, H. C.	NGR 12-001-075	1963
11	UNIV OF HAWAII-MANOA	Kupperian, J. E., Jr.	GSFC	Boesgaard, A. M.	NSG 5096	1967
11	UNIV OF HAWAII-MANOA	Weir, J. F.	HQ-BX	Jefferies, J. T.	NASW 2742	1958
11	UNIV OF HAWAII-MANOA	Weir, J. F.	HQ-BX	Jefferies, J. T.	NASW 2801	1959
11	UNIV OF HAWAII-MANOA	Strickland, A. T.	HQ-SL	Jefferies, J. T.	NASW 2326	1957
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	Jefferies, J. T.	NGL 12-001-057	1962
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	McCord, T. B.	NSG 7310	1970
11	UNIV OF HAWAII-MANOA	Brunk, W. E.	HQ-SL	McCord, T. B.	NSG 7323	1972
11	UNIV OF HAWAII-MANOA	Timothy, A. F.	HQ-ST	Jefferies, J. T.	NGL 12-001-011	1960
11	UNIV HOUSTON-HOUSTON	Golden, R. L.	JSC	Sheldon, W. R.	NAS 9-14209	3402
11	UNIV ILLINOIS-URBANA	Brunk, W. E.	HQ-SL	Dickel, J. R.	NGR 14-005-176	2026
11	UNIV OF IOWA	Hall, C. F.	ARC	VanAllen, J. A.	NAS 2-6553	2104
11	UNIV OF IOWA	White, C.	GSFC	Gurnett, D. A.	NAS 5-11279	2106
11	UNIV MARYLAND-BALT	Roman, N. G.	HQ-SA	Misner, C. W.	NGR 21-002-010	2232
11	UNIV MARYLAND-COL PK	Klingelsmith, D. A.	GSFC	Rosenfeld, A.	NCA 5-17	2248
11	UNIV MARYLAND-COL PK	Dunkelman, L.	GSFC	Kassander, R. A.	NCA 5-18	2249
11	UNIV MARYLAND-COL PK	Fischel, D.	GSFC	Rosenfeld, A.	NCA 5-20	2250
11	UNIV MARYLAND-COL PK	Slade, W.	GSFC	Rosenfeld, A.	NCA 5-22	2251
11	UNIV MARYLAND-COL PK	Clark, T. A.	GSFC	Richard, J. P.	NSG 5035	2279
11	UNIV MARYLAND-COL PK	Kupperian, J. E., Jr.	GSFC	Bell, R. A.	NSG 5059	2283
11	UNIV MARYLAND-COL PK	Sofia, S.	HQ-SA	Earl, J. A.	NGR 21-002-066	2256
11	UNIV MARYLAND-COL PK	Rosendhal, J. D.	HQ-SA	Griem, H. R.	NGR 21-002-073	2257
11	UNIV MARYLAND-COL PK	Sofia, S.	HQ-SA	Gloeckler, G	NGR 21-002-224	2260
11	UNIV MARYLAND-COL PK	Opp, A. G.	HQ-SA	Rose, W. K.	NSG 7252	2299
11	UNIV MARYLAND-COL PK	Rosendhal, J. D.	HQ-SA	Currie, D. G.	NSG 7284	2302
11	UNIV MARYLAND-COL PK	Donn, B. D.	HQ-SL	Opik, E. J.	NGR 21-002-002	2255
11	UNIV MARYLAND-COL PK	Brunk, W. E.	HQ-SL	AHearn, M. F.	NSG 7322	2304
11	UNIV OF MASS-AMHERST	Hall, C. F.	ARC	McGill, G. E.	NAS 2-9129	2496
11	UNIV OF MASS-AMHERST	Brunk, W. E.	HQ-SL	Irvine, W. M.	NGL 22-010-023	2497
11	UNIV OF MASS-AMHERST	Timothy, A. F.	HQ-ST	Strong, J.	NGL 22-010-025	2498
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Donahue, T. M.	NAS 2-9126	2510
11	UNIV MICH-ANN ARBOR	Hall, C. F.	ARC	Nagy, A. F	NAS 2-9130	2511
11	UNIV MICH-ANN ARBOR	Hoffman, R. A.	GSFC	Hays, P. B.	NAS 5-23791	2523
11	UNIV MICH-ANN ARBOR	Spenser, N.	GSFC	Carignan, G. R.	NAS 5-24135	2524
11	UNIV MICH-ANN ARBOR	Kupperian, J. E., Jr.	GSFC	Donahue, T. M.	NSG 5097	2556
11	UNIV MICH-ANN ARBOR	Kupperian, J. E., Jr	GSFC	Donahue, T. M.	NSG 5117	2557
11	UNIV MICH-ANN ARBOR	Kupperian, J. E., Jr.	GSFC	Atreya, S. K.	NSG 5139	2558
11	UNIV MICH-ANN ARBOR	Kupperian, J. E., Jr.	GSFC	Donahue, T. M.	NSG 5206	2561
11	UNIV MICH-ANN ARBOR	Rosendhal, J. D.	HQ-SA	Hiltner, W. A.	NGR 23-005-464	2540
11	UNIV MICH-ANN ARBOR	Bohlin, D. J.	HQ-ST	Mohler, O. C.	NGL 23-005-275	2535
11	UNIV MICH-ANN ARBOR	Tilford, S. G.	HQ-SU	Anderson, J. G.	NASW 3065	2533

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TP-C LG	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO
11	U MINN-MNPLS-ST PAUL	Gemmell, J.	GSFC	Kellogg, P. J.	NAS 5-11310	2575
11	U MINN-MNPLS-ST PAUL	Barrowman, J. S.	GSFC	Waddington, C. J	NAS 5-23684	2579
11	U MINN-MNPLS-ST PAUL	Krome, H. O.	MSFC	Waddington, C. J.	NAS 8-27977	2581
11	U MINN-MNPLS-ST PAUL	Sofia, S	HQ-SA	Waddington, C. J.	NGR 24-005-050	2589
11	U MINN-MNPLS-ST PAUL	Boggess, N. W	HQ-SA	Wells, W. R.	NSG 2014	2594
11	U MINN-MNPLS-ST PAUL	Roman, N. G.	HQ-SA	Gallagher, J. S.	NSG 7259	2604
11	U MINN-MNPLS-ST PAUL	Roman, N. G.	HQ-SA	Luyten, W. J	NSR 24-005-245	2607
11	UNIV MO-ST LOUIS	Kupperian, J. E., Jr.	GSFC	Schwartz, R. D.	NSG 5151	2652
11	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Chupp, E. L.	NAS 5-23493	2686
11	UNIV NEW HAMP-DURHAM	Trainor, J. H.	GSFC	Webber, W. R.	NAS 5-23803	2688
11	UNIV NEW HAMP-DURHAM	Sofia, S.	HQ-SA	Chupp, E. L	NGL 30-002-021	2690
11	UNIV NEW HAMP-DURHAM	Sofia, S.	HQ-SA	Webber, W. R.	NGR 30-002-052	2691
11	UNIV OF NEW MEXICO	Temkin, A.	GSFC	Beckel, C. L.	NCA 5-55	2765
11	UNIV OF NEW MEXICO	Jones, H. P.	GSFC	Regener, V. H	NCA 5-56	2766
11	UNIV OF NEW MEXICO	Maran, S. P.	GSFC	StJohn, R.	NCA 5-57	2767
11	UNIV OF NEW MEXICO	Jones, H. P.	GSFC	Regener, V. H.	NCA 5-66	2768
11	UNIV OF NOTRE DAME	Haggard, J. B.	LERC	Kanury, A. M.	NAS 3-21018	2084
11	UNIV OF PITTSBURGH	Billingham, J.	ARC	Gatewood, G. D	NSG 2116	3231
11	UNIV OF PITTSBURGH	Billingham, J.	ARC	Gatewood, G. D.	NSG 2117	3232
11	UNIV OF PITTSBURGH	Dwornik, S. E.	HQ-SL	Hapke, B. W.	NSG 7147	3238
11	UNIV OF ROCHESTER	Kupperian, J. E., Jr.	GSFC	Savedoff, M. P	NSG 5054	2971
11	UNIV OF ROME	Bavely, J. C.	HQ-TN	Broglio, L.	NASW 2135	3753
11	UNIV OF SO FLORIDA	Tolson, R. H.	LARC	Smith, H. C.	NSG 1420	1890
11	UNIV OF SO FLORIDA	Hall, J. B., Jr.	LARC	Wilkins, R. D.	NSG 7242	1892
11	UNIV OF SOUTHERN CAL	Hall, C. F.	ARC	Judge, D. L.	NAS 2-6558	1615
11	UNIV OF SOUTHERN CAL	Hall, C. F.	ARC	Intriligator, D. S.	NAS 2-7969	1616
11	UNIV TENNESSEE-KNOXV	Harris, J. W.	JSC	Taylor, L. A.	NGL 43-001-140	3295
11	UNIV TENNESSEE-KNOXV	Bohlin, J. D.	HQ-SG	Sellin, I. A	NSG 7049	3305
11	UNIV TEXAS-AUSTIN	Kupperian, J. E., Jr.	GSFC	Lambert, D. L.	NSG 5005	3451
11	UNIV TEXAS-AUSTIN	Kupperian, J. E., Jr.	GSFC	Smith, M. A.	NSG 5167	3453
11	UNIV TEXAS-AUSTIN	Potter, A. E.	JSC	Barnes, I.	NAS 9-15093	3432
11	UNIV TEXAS-AUSTIN	Williams, J. R.	MSFC	Henize, K	NAS 8-31459	3427
11	UNIV TEXAS-AUSTIN	Rosendhal, J. D.	HQ-SA	VanDenBout, P. A.	NGR 44-012-209	3441
11	UNIV TEXAS-AUSTIN	Roman, N. G.	HQ-SA	Wheeler, J. C.	NSG 7232	3456
11	UNIV TEXAS-AUSTIN	Rosendhal, J. D.	HQ-SA	Bengtson, R. D	NSG 7347	3459
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Wilson, W. J.	NGL 44-012-006	3437
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Douglas, J. N	NGL 44-012-055	3438
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Trafton, L. M.	NGR 44-012-152	3439
11	UNIV TEXAS-AUSTIN	Brunk, W. E.	HQ-SL	Mulholland, J. D.	NGR 44-012-282	3444
11	UNIV TEXAS-AUSTIN	Timothy, A. F.	HQ-ST	Bengtson, P. D.	NGR 44-012-258	3443
11	UNIV OF TOLEDO	Kupperian, J. E., Jr.	GSFC	Molnar, M. R.	NSG 5183	3098
11	UNIV OF TOLEDO	Kupperian, J. E., Jr.	GSFC	Bopp, B. W.	NSG 5207	3099
11	UNIV OF TOLEDO	Rosendhal, J. D.	HQ-SA	Witt, A. N.	NSG 7041	3100
11	UNIV OF TOLEDO	Roman, N. G.	HQ-SA	Molnar, M. R.	NSG 7138	3101
11	UNIV OF TOLEDO	Donn, B. D.	HQ-SL	Delsemme, A. H	NSG 7301	3102
11	UNIV OF VIRGINIA	Stecher, T. P.	GSFC	OConnell, R. W	NAS 5-22346	3588
11	UNIV OF VIRGINIA	Sobieski, S.	GSFC	Frederick, L. W	NGR 47-005-204	3593
11	UNIV OF VIRGINIA	Alvarez, J. M.	LARC	Singer, S. F	NSG 1256	3599
11	UNIV OF VIRGINIA	Humes, D. H.	LARC	Singer, S. F.	NSG 1427	3606
11	UNIV OF VIRGINIA	Roman, N. G.	HQ-SA	Frederick, L. W.	NGL 47-005-066	3591
11	UNIV OF VIRGINIA	Brunk, W. E	HQ-SL	Ianna, P. A.	NSG 7364	3610
11	UNIV OF WASHINGTON	Brandt, J. C	GSFC	Bohm-Vitense, E.	NAS 5-22379	3659
11	UNIV OF WASHINGTON	Kupperian, J. E., Jr.	GSFC	Wallerstein, G.	NSG 5142	3679
11	UNIV OF WASHINGTON	Sofia, S.	HQ-SA	Lord, J. J.	NSG 7318	3684
11	UNIV OF WASHINGTON	French, B. M.	HQ-SL	Hodge, P. W	NGR 48-002-033	3668
11	UNIV OF WASHINGTON	Brunk, W. E	HQ-SL	Greene, T. F.	NGR 48-002-142	3671
11	UNIV WISC-MADISON	Stecher, T. P.	GSFC	Anderson, C. M	NAS 5-22349	3700
11	UNIV WISC-MADISON	Sobieski, S.	GSFC	Bless, R. C	NAS 5-23285	3702

ORIGINAL PAGE IS
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NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
11	UNIV WISC-MADISON	Hibbard, W.	GSFC	Code, A. D.	NAS 5-23748	3706
11	UNIV WISC-MADISON	Bissell, E. E.	GSFC	Code, A. D.	NGL 50-002-013	3712
11	UNIV WISC-MADISON	Bissell, E. E.	GSFC	Kraushaar, W. L.	NGL 50-002-044	3713
11	UNIV WISC-MADISON	Kupperian, J. E., Jr.	GSFC	Savage, B. D.	NSG 5100	3723
11	UNIV WISC-MADISON	Kupperian, J. E., Jr	GSFC	Cassinelli, J. P.	NSG 5180	3726
11	UNIV WISC-MADISON	Kupperian, J. E., Jr.	GSFC	Savage, B. D.	NSG 5181	3727
11	UNIV WISC-MADISON	Odell, C. R.	MSFC	Code, A. D.	NAS 8-29387	3709
11	UNIV WISC-MADISON	Roman, N. G.	HQ-SA	Code, A. D.	NSG 7050	3728
11	UNIV WISC-MADISON	Rosendhal, J. D.	HQ-SA	Savage, B. D.	NSG 7133	3729
11	VANDERBILT UNIVERSTY	Roman, N. G.	HQ-SA	Weedman, D. W.	NSG 7343	3316
11	VASSAR COLLEGE	Rosendhal, J. D.	HQ-SA	Hutchinson, J. L.	NSG 7359	2973
11	VIRGINIA POLY INST	Fellows, R. F.	HQ-SL	McGee, H. A.	NGL 47-004-080	3623
11	WASHINGTON UNIVERSTY	Kupperian, J. E., Jr.	GSFC	Smith, W. H.	NSG 5187	2662
11	WASHINGTON UNIVERSTY	Krome, H. O.	MSFC	Israel, M. H.	NAS 8-27976	2655
11	WASHINGTON UNIVERSTY	Sofia, S.	HQ-SA	Israel, M. H.	NGR 26-008-001	2658
11	WASHINGTON UNIVERSTY	Roman, N. G.	HQ-SA	Smith, W. H.	NSG 7372	2666
11	WASHINGTON UNIVERSTY	Brunk, W. E.	HQ-SL	Smith, W. H.	NSG 7334	2665
11	YESHIVA UNIVERSITY	Hansen, J. E.	GSFC	Finkelstein, D.	NGL 33-023-018	2974
12	ADELPHI UNIVERSITY	Buell, D. A.	ARC	Steinmetz, W. J.	NSG 2088	2778
12	ARIZONA STATE UNIV	Pollack, G. E.	ARC	Yuen, G. U.	NCA 2-35702	1076
12	ATHENS STATE COLLEGE	Zwiener, J. M.	MSFC	Workman, G. L.	NAS 8-31731	1010
12	ATLANTA UNIVERSITY	Curry, J. E.	MSFC	Reed, J. L.	NSG 8019	1893
12	BOWIE STATE COLLEGE	Gross, F. C.	GSFC	Rock, M.	NSG 5009	2205
12	CALIF INST OF TECH	Harris, J. W.	JSC	Wasserburg, G. J.	NGL 05-002-188	1177
12	CAL STATE U-CHICO	Kourtides, D. A.	ARC	Sours, C. R.	NSG 2240	1212
12	CAL STATE U-L ANGLES	Young, R. S.	HQ-SB	Bragin, J.	NSG 7261	1220
12	CASE WESTERN RESERVE	Quattrone, P. D.	ARC	Yeager, E.	NGR 36-027-050	3014
12	CASE WESTERN RESERVE	Kohl, F. J.	LERC	Mateescu, G. D.	NSG 3009	3019
12	CASE WESTERN RESERVE	Serafini, T. T.	LERC	Koenig, J. L.	NSG 3140	3032
12	CASE WESTERN RESERVE	Lauver, R. W.	LERC	Ritchey, W. M.	NSG 3142	3033
12	CASE WESTERN RESERVE	Schafer, C. F.	MSFC	Ostrach, S.	NAS 8-31907	3011
12	CATHOLIC UNIVERSITY	Stief, L. J.	GSFC	Timmons, R. B.	NGR 09-005-103	1762
12	CLARKSON COL OF TECH	Serafini, T. T.	LERC	Jellinek, H. H.	NSG 3100	2793
12	COLLEGE OF WM & MARY	Young, P. R.	LARC	Kranbuehl, D. E.	NSG 1095	3519
12	COLORADO SCH OF MINE	Reynolds, T. W.	LERC	Daniel, S. R.	NSG 3122	1631
12	COLUMBIA UNIVERSITY	Harris, J. W.	JSC	Ridley, W. I.	NGR 33-008-199	2814
12	COPPIN STATE COLLEGE	Ford, F.	GSFC	McDermott, P. P.	NSG 5051	2206
12	CORNELL UNIVERSITY	Young, R. S.	HQ-SB	Sagan, C. L.	NGR 33-010-101	2845
12	ELIZABETH CITY ST U	Conway, E. J.	LARC	Chatterjee, K. K.	NSG 1179	2981
12	FISK UNIVERSITY	Parnell, T. A.	MSFC	Mickens, R. E.	NSG 8035	3265
12	HAMPTON INSTITUTE	Jachimowski, C. J.	LARC	Hunter, C. E.	NSG 1086	3530
12	HARVARD UNIVERSITY	Harris, J. W.	JSC	Hays, J. F.	NGL 22-007-247	2339
12	HOWARD UNIVERSITY	Stief, L. J.	GSFC	Jackson, W. M.	NSG 5071	1811
12	INDIANA U-BLOOMINGTN	Chang, S.	ARC	Hayes, J. M.	NCA 2-335702	2049
12	INDIANA U-BLOOMINGTN	Harris, J. W.	JSC	Meinschein, W. G.	NGR 15-003-105	2051
12	INDIANA U-BLOOMINGTN	Conway, E. J.	LARC	Ortoleva, P.	NSG 1319	2053
12	KENT STATE UNIV-KENT	Quattrone, P. D.	ARC	Madey, R.	NSG 2013	3042
12	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Goldstein, J. I.	NGR 39-007-056	3169
12	LEHIGH UNIVERSITY	Fichtl, G. H.	MSFC	Pochlein, G. W.	NCA 8-123	3165
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Reid, R. C.	NGR 22-009-723	2420
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Steinfeld, J. I.	NGR 22-009-766	2425
12	MASS INST OF TECH	Quattrone, P. D.	ARC	Modell, M.	NGR 22-009-799	2429
12	MASS INST OF TECH	Harris, J. W.	JSC	Burns, R. G.	NGR 22-009-551	2414
12	MASS INST OF TECH	Byvik, C. E.	LARC	Wrighton, M. S.	NSG 1048	2435
12	MASS INST OF TECH	Young, R. S.	HQ-SB	Rich, A.	NGR 22-009-277	2408
12	MOREHOUSE COLLEGE	Stephens, J. B.	MSFC	Gales, J. N.	NGL 11-008-001	1937
12	MOREHOUSE COLLEGE	Clemons, J. M.	MSFC	Frazier, D. O.	NSG 8030	1942
12	MOREHOUSE COLLEGE	Clemons, J. M.	MSFC	Hall, J. H., Jr.	NSG 8049	1945

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
12	MORRIS BROWN COLLEGE	Patterson, W. J.	MSFC	Weaver, F.	NSG 8027	1946
12	NM HIGHLANDS UNIV	Bryan, C. J	KSC	Clark, R. D.	NSG 804	2735
12	OLD DOMINION UNIV	Phillips, D. H.	LARC	Goglia, G. L.	NSG 1393	3578
12	PENN STATE U-UNIV PK	Fewell, L. L.	ARC	Allcock, H. R.	NSG 2241	3201
12	POLY INST OF NY	Fohlen, G. M.	ARC	Pearce, E. M.	NSG 2147	2899
12	POLY INST OF NY	Riccitiello, S. R.	ARC	Pearce, E. M.	NSG 2182	2900
12	POLY INST OF NY	Young, R. S.	HQ-SB	Eirich, F. R.	NGR 33-006-070	2894
12	POMONA COLLEGE	Williams, T. S., Jr.	LARC	Baird, A. K.	NAS 1-11854	1227
12	RENSSELAER POLY-NY	Young, R. S.	HQ-SB	Ferris, J. P.	NGR 33-018-148	2912
12	SAN FRAN STATE UNIV	Lawless, J. G.	ARC	Orenberg, J. B.	NCA 2-660701	1232
12	SAN FRAN STATE UNIV	Young, R. S.	HQ-SB	Kenyon, D. H.	NSG 7234	1236
12	SAN JOSE STATE UNIV	Altman, R. L	ARC	Ling, A. C.	NCA 2-675706	1239
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Spitze, L. A.	NGR 05-046-011	1246
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Spitze, L. A.	NSG 2066	1248
12	SAN JOSE STATE UNIV	Bolub, M. A.	ARC	Neptune, J. A.	NSG 2111	1251
12	SAN JOSE STATE UNIV	Rosser, R. W.	ARC	Neptune, J. A.	NSG 2186	1255
12	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Sharfstein, H. B.	NSG 2200	1256
12	SAN JOSE STATE UNIV	Parker, J. A.	ARC	Ling, A. C.	NSG 2209	1257
12	SAN JOSE STATE UNIV	Riccitiello, S. R.	ARC	Myronuk, D. J.	NSG 2219	1259
12	SAN JOSE STATE UNIV	Altman, R. L.	ARC	Ling, A. C.	NSG 2223	1260
12	SAN JOSE STATE UNIV	Woeller, F.	ARC	Mayer, L. A.	NSG 2237	1264
12	SAN JOSE STATE UNIV	Wydeven, T. J.	ARC	Acrivos, J.	NSG 2247	1266
12	STANFORD UNIVERSITY	Chang, S.	ARC	Loew, G. H	NGR 05-020-405	1319
12	STATE UNIV NY-BUFFAL	Harris, J. W.	JSC	Cadenhead, D. A.	NGL 33-183-013	2936
12	STATE UNIV NY-BUFFAL	Nerren, B. H.	MSFC	Grusha, E.	NAS 8-31953	2935
12	STATE U NY-STONY BRK	Harris, J. W.	JSC	Schaeffer, O. A	NGL 33-015-174	2943
12	STATE U NY-STONY BRK	Young, R. S.	HQ-SB	Owen, T.	NGR 33-015-169	2948
12	TEXAS A&M UNIVERSITY	Young, R. S.	HQ-SB	Fendler, J. H	NSG 7037	3393
12	UNIV OF ALBUQUERQUE	Fordyce, J. S.	LERC	Urzendowski, R. M.	NSG 3092	2760
12	UNIV ALA-BIRMINGHAM	Young, R. S.	HQ-SB	Lacey, J. C., Jr.	NGR 01-010-001	1038
12	UNIV ALA-TUSCALOOSA	Linton, R. C.	MSFC	Desmedt, D.	NAS 8-32481	1065
12	UNIV OF ARIZONA	Harris, J. W.	JSC	Drake, M. J.	NGR 03-002-388	1121
12	UNIV CALIF-BERKELEY	Billman, K. W	ARC	Gustafson, T. K.	NCA 2-50707	1394
12	UNIV CALIF-BERKELEY	Cagliostro, D. E.	ARC	Williamson, R. B.	NSG 2084	1420
12	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Price, P. B	NGL 05-003-410	1402
12	UNIV CALIF-BERKELEY	Young, R. S.	HQ-SB	Jukes, J. H	NGR 05-003-460	1409
12	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Wasson, J. T	NGL 05-007-367	1478
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arnold, J. R.	NAS 9-15381	1527
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Arnold, J. R.	NGL 05-009-148	1536
12	UNIV CALIF-SAN DIEGO	Harris, J. W.	JSC	Marti, K.	NGL 05-009-150	1537
12	UNIV CALIF-SAN DIEGO	Young, R. S.	HQ-SB	Miller, S. L.	NGR 05-009-218	1546
12	UNIV OF CHICAGO	Harris, J. W.	JSC	Clayton, R. N.	NGL 14-001-169	2000
12	UNIV COLORADO-BOLDR	Whitten, R. C.	ARC	Castleman, A. W	NSG 2248	1694
12	UNIV OF FLORIDA	Alston, W. B.	LERC	Butler, G. B.	NSG 3120	1867
12	UNIV OF FLORIDA	Schell, J. T.	MSFC	Patterson, E. P.	NAS 8-20247	1852
12	UNIV OF HAWAII-MANOA	Young, R. S.	HQ-SB	Folsome, C. E.	NGR 12-001-109	1964
12	UNIV HOUSTON-HOUSTON	Young, R. S.	HQ-SB	Becker, R. S.	NGR 44-005-091	3411
12	UNIV ILLINOIS-URBANA	Young, R. S.	HQ-SB	Woese, C. R.	NSG 7044	2041
12	UNIV OF KENTUCKY	Lawless, J. G	ARC	Kiser, R. W.	NCA 2-370701	2163
12	UNIV MARYLAND-COL PK	Stief, L. J.	GSFC	Ponnamperuma, C. A	NAS 5-20934	2236
12	UNIV MARYLAND-COL PK	Kelsall, T	GSFC	Currie, D. G.	NAS 5-24305	2244
12	UNIV MARYLAND-COL PK	Donn, B. D.	GSFC	Khanna, R. J	NSG 5172	2292
12	UNIV MARYLAND-COL PK	Young, R. S.	HQ-SB	Ponnamperuma, C. A.	NGR 21-002-317	2264
12	UNIV OF MIAMI	Young, R. S.	HQ-SB	Fox, S. W.	NGR 10-007-008	1880
12	UNIV MICH-ANN ARBOR	Tilford, S. G.	HQ-SU	Cicerone, R. J.	NSG 7187	2562
12	UNIV MO-ROLLA	Graves, R. A., Jr.	LARC	Biolsi, L.	NSG 1369	2649
12	UNIV OF NEW MEXICO	Harris, J. W.	JSC	Keil, K	NGL 32-004-063	2770
12	UNIV OF NEW MEXICO	Williams, T. S., Jr.	LARC	Keil, K.	NAS 1-11855	2761

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
12	UNIV OF NOTRE DAME	Cochran, T. H.	LERC	Kanury, A. M.	NAS 3-20087	2083
12	UNIV OF PITTSBURGH	Fordyce, J. S.	LERC	Liu, C. C.	NSG 3002	3234
12	UNIV OF PITTSBURGH	Tilford, S. G.	HQ-SU	Kaufman, F.	NGR 39-011-161	3230
12	UNIV SAN FRANCISCO	Kourtides, D. A.	ARC	Hilado, C. J.	NSG 2039	1593
12	UNIV OF SANTA CLARA	Chang, S.	ARC	White, D. H.	NCA 2-685708	1600
12	UNIV STHN COLORADO	Bryan, C. J	KSC	Mahan, K. I	NSG 806	1731
12	U TENNESSEE-MEMPHIS	Kaplan, H. L.	JSC	Austian, J.	NAS 9-14918	3307
12	UTAH STATE UNIV	Tilford, S. G.	HQ-SU	Moore, W. M.	NSG 7206	3510
12	VIRGINIA COMNWLTH U	Bell, V. L.	LARC	Stump, B. L.	NGR 47-002-041	3613
12	VIRGINIA POLY INST	Johnston, N. J.	LARC	Wolfe, J. F.	NSG 1064	3630
12	VIRGINIA POLY INST	Young, P. R.	LARC	Mason, J. G.	NSG 1085	3631
12	VIRGINIA POLY INST	Progar, D. J.	LARC	Wightman, J. P.	NSG 1124	3633
12	VIRGINIA POLY INST	StClair, T. L.	LARC	Ogharuso, M. A.	NSG 1286	3644
12	VIRGINIA POLY INST	Pellett, G. L.	LARC	Wightman, J. P.	NSG 1389	3650
12	VIRGINIA POLY INST	Slemp, W. S.	LARC	Taylor, L. T.	NSG 1428	3651
12	WASHINGTON ST UNIV	Poppa, H. R.	ARC	Dickinson, J. T.	NCA 2-840701	3688
12	WILBERFORCE UNIV	Hsu, L. C.	LERC	Stickney, P. B.	NSG 3067	3104
13	ALABAMA A&M UNIV	Bannister, T. C.	MSFC	Lal, R. B.	NSG 8033	1003
13	ALABAMA A&M UNIV	Bilbro, J. W.	MSFC	Murty, S. S.	NSG 8037	1004
13	ARIZONA STATE UNIV	Morris, J. F.	LERC	Jacobson, D. L.	NSG 7019	1080
13	ATHENS STATE COLLEGE	Fountain, J. A	MSFC	McNutt, R. C.	NAS 8-28058	1009
13	ATHENS STATE COLLEGE	Finnell, S. E.	MSFC	Martin, A. M.	NAS 8-32220	1011
13	ATHENS STATE COLLEGE	Finnell, S. E.	MSFC	Workman, G. L.	NAS 8-32221	1012
13	BOSTON COLLEGE	Cauffman, D. P.	HQ-ST	Eather, R. H	NSG 7190	2315
13	BOWIE STATE COLLEGE	Caruso, A. J.	GSFC	Bhatia, M. S.	NGR 21-027-010	2203
13	BRIGHAM YOUNG UNIV	Hall, C. F.	ARC	Jones, D. E.	NAS 2-7358	3490
13	BRIGHAM YOUNG UNIV	Roth, J. R.	LERC	Gardner, A. L.	NSG 3068	3494
13	BROOKLYN COLLEGE	Meador, W. E.	LARC	Franco, V.	NSG 1378	2781
13	BROWN UNIVERSITY	Walker, G. H.	LARC	Loferski, J. J	NGR 40-002-093	3243
13	CALIF INST OF TECH	Davis, M. A.	GSFC	Stone, E. C.	NAS 5-11066	1160
13	CALIF INST OF TECH	Gallagher, W. F	GSFC	Stone, E. C	NAS 5-20721	1161
13	CALIF INST OF TECH	Stouffer, C. G	GSFC	Garmire, G. P.	NAS 5-24339	1168
13	CALIF INST OF TECH	Harris, J. W.	JSC	Epstein, S	NGL 05-002-190	1178
13	CALIF INST OF TECH	Harris, J. W.	JSC	Albee, A. L.	NGL 05-002-338	1180
13	CALIF INST OF TECH	Harris, J. W.	JSC	Tombrello, T. A.	NGR 05-002-333	1189
13	CALIF INST OF TECH	Randolph, L. P.	HQ-RR	Vaughan, R	NSG 7275	1204
13	CALIF INST OF TECH	Timothy, A. F.	HQ-ST	Zirin, H.	NGR 05-002-345	1190
13	CAL STATE U-FULLERTN	Boese, R. W.	ARC	Nanes, R.	NCA 2-253701	1214
13	CARNEGIE-MELLON UNIV	Walker, G. H	LARC	Milnes, A. G.	NGR 39-087-021	3145
13	CATHOLIC UNIVERSITY	Dennis, B. R.	GSFC	Werntz, C.	NSG 5066	1763
13	CATHOLIC UNIVERSITY	Reinhardt, V. S.	GSFC	Major, F. G.	NSG 5107	1764
13	CATHOLIC UNIVERSITY	McAvoy, N.	GSFC	Lally, J.	NSG 5111	1765
13	CATHOLIC UNIVERSITY	Taylor, W. W.	HQ-ST	Whang, Y. C.	NGR 09-005-063	1760
13	CITY COLLEGE OF N Y	Byrns, Z. H.	JSC	Pierson, W. J.	NAS 9-13642	2783
13	CLARK COLLEGE	Somoano, R.	JPL	Sinha, O. P.	NSG 7267	1895
13	CLARKSON COL OF TECH	Bailey, J. V	JSC	McNulty, P. J	NSG 9059	2795
13	CLEVELAND STATE UNIV	Brown, G. V.	LERC	Chu, C. W.	NSG 3144	3040
13	COLLEGE OF WM & MARY	Breckenridge, R. A.	LARC	Moriarity, J. A.	NSG 1089	3518
13	COLLEGE OF WM & MARY	Crouch, R. K.	LARC	Sher, A.	NSG 1385	3521
13	COLORADO STATE UNIV	Billman, K. W.	ARC	She, C. Y.	NCA 2-165701	1642
13	COLORADO STATE UNIV	Harris, J. W	JSC	Patton, C. E.	NSG 9037	1663
13	COLORADO STATE UNIV	Brown, G. V.	LERC	Etters, R. D.	NGR 06-002-159	1649
13	COLORADO STATE UNIV	Chubb, D. L.	LERC	Collins, G. J	NSG 3060	1655
13	COLORADO STATE UNIV	Theman, E. R.	LERC	Kaufman, H. R.	NSG 3086	1656
13	COLORADO STATE UNIV	Berkopec, F. D	LERC	Yadlowsky, E. J.	NSG 3145	1658
13	COLORADO STATE UNIV	Sater, B. L.	LERC	Sites, J. R.	NSG 3167	1659
13	COLUMBIA UNIVERSITY	Bissell, E. E.	GSFC	Novick, R.	NSG 5146	2822
13	COLUMBIA UNIVERSITY	Harris, J. W	JSC	Horai, K.	NGR 33-008-177	2811

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
13	CORNELL UNIVERSITY	Findlay, J. A.	GSFC	Walker, J. C.	NAS 5-20705	2832
13	CORNELL UNIVERSITY	Conrath, B. J.	GSFC	Gierasch, P. J.	NAS 5-23236	2834
13	CORNELL UNIVERSITY	Harris, J. W.	JSC	Gold, T.	NGR 33-010-137	2847
13	CORNELL UNIVERSITY	Jobson, D. J.	LARC	Harwit, M. O.	NSG 1263	2857
13	CORNELL UNIVERSITY	Flood, D. J.	LERC	Krumhansl, J. A.	NGR 33-010-188	2854
13	CORNELL UNIVERSITY	Cauffman, D. P.	HQ-ST	Farley, D. T.	NGR 33-010-161	2850
13	DARTMOUTH COLLEGE	Taylor, W. W.	HQ-ST	Morgan, M. G.	NGR 30-001-041	2682
13	DELAWARE STATE COL	Aikin, A. C.	GSFC	Helmy, E. M.	NGR 08-002-005	1748
13	DREXEL UNIVERSITY	Nelson, E. D.	GSFC	House, F. B.	NAS 5-22946	3151
13	FISK UNIVERSITY	Kroes, R. L.	MSFC	Silberman, E.	NGR 43-021-002	3264
13	FLORIDA A&M UNIV	Pohly, J. G.	HQ-P	Jones, H. J.	NSG 901	1832
13	FLORIDA STATE UNIV	Hardin, J. C.	LARC	Tam, C. K.	NSG 1329	1842
13	FORT LEWIS COLLEGE	Browne, I. D.	JSC	Baker, J. R.	NAS 9-15276	1665
13	GEORGIA INST OF TECH	Preisser, J. S.	LARC	Pierce, A. D	NSG 1307	1925
13	GEORGIA INST OF TECH	Huff, R. G.	LERC	Strahle, W C.	NSG 3015	1928
13	GEORGIA INST OF TECH	Kerr, J. H.	MSFC	Callen, W. R.	NAS 8-30246	1911
13	GEORGIA INST OF TECH	Kerr, J. H.	MSFC	Callen, W. R.	NAS 8-31193	1915
13	GEORGIA INST OF TECH	Smith, H. F.	MSFC	Walsh, J. R.	NAS 8-31344	1916
13	GRAMBLING STATE UNIV	Kroes, R. L.	MSFC	Murty, A. N.	NGR 19-011-016	2179
13	GRAMBLING STATE UNIV	Chappell, C. R.	MSFC	Cummings, W. D.	NSG 8034	2180
13	HARVARD UNIVERSITY	McAvoy, N.	GSFC	Bloembergen, N.	NGL 22-007-117	2337
13	HARVARD UNIVERSITY	Bissell, E. E.	GSFC	Reeves, E. M	NSG 5128	2349
13	HARVARD UNIVERSITY	Reed, E. I.	GSFC	Parkinson, W H	NSG 5176	2352
13	HARVARD UNIVERSITY	Snoddy, W. C.	MSFC	Vaiana, G. S.	NAS 8-31374	2330
13	HARVARD UNIVERSITY	Bordelon, C. S.	MSFC	Noyes, R. W.	NAS 8-31549	2331
13	HARVARD UNIVERSITY	Timothy, A. F.	HQ-ST	Parkinson, W. H.	NGL 22-007-006	2335
13	HARVARD UNIVERSITY	Timothy, A. F.	HQ-ST	Reeves, E. M.	NSG 7175	2355
13	HOWARD UNIVERSITY	Yin, L. I.	GSFC	Tsang, T.	NGR 09-011-057	1804
13	HOWARD UNIVERSITY	Lyons, J. C.	GSFC	Bhar, T. N.	NSG 51[illegible]	1815
13	HOWARD UNIVERSITY	OKeefe, J. A.	GSFC	Thorpe, A N	NSG 5186	1816
13	ILL INST OF TECH	Thom, K.	HQ-RR	Weinstein, H	NSG 7039	1980
13	JOHNS HOPKINS UNIV	Taylor, W. W.	HQ-ST	Krimigis, S. M.	NSG 7055	2228
13	LEHIGH UNIVERSITY	Harris, J. W.	JSC	Sclar, C. B	NGR 39-007-064	3171
13	LA ST U&A&M COL-BRGE	Hamby H. G.	MSFC	Farmer, R. C.	NAS 8-30380	2181
13	MASS INST OF TECH	Davis, M. A.	GSFC	Bridge, H. S.	NAS 5-11062	2372
13	MASS INST OF TECH	McAvoy, N.	GSFC	Javan, A.	NGR 22-009-741	2424
13	MASS INST OF TECH	Harris, J. L.	JSC	Simmons, M. G.	NGR 22-009-540	2413
13	MASS INST OF TECH	Allario, F.	LARC	Fonstad, C. G.	NSG 1413	2445
13	MASS INST OF TECH	Weinberg, I.	LERC	Gatos, H. C.	NSG 3017	2459
13	MASS INST OF TECH	Reinmann, J. J.	LERC	Lax, B.	NSG 3088	2466
13	MASS INST OF TECH	Dahms, I.	MSFC	Gatos, H. C.	NGL 22-009-125	2398
13	MASS INST OF TECH	Roberts, J. L	HQ-MT	Chapman, P. K.	NGR 22-009-735	2423
13	MASS INST OF TECH	Taylor, W. W.	HQ-ST	Bridge, H. S.	NGL 22-009-015	2396
13	MIAMI UNIVERSITY	Hohl, F.	LARC	Wells, W. E	NSG 1383	3045
13	MIAMI UNIVERSITY	Hohl, F.	LARC	Wells, W. E.	NSG 1396	3046
13	MICHIGAN STATE UNIV	Unavailable	LARC	Unavailable	NAS 1-6860	2504
13	MICHIGAN STATE UNIV	Timothy, A. F	HQ-ST	Stein, R. F.	NSG 7293	2508
13	MISSISSIPPI STATE U	Routh, D. E.	MSFC	Gassaway, J. D.	NAS 8-26749	2613
13	MOREHOUSE COLLEGE	Shriver, E. L.	MSFC	Spight, C.	NSG 8014	1940
13	MOREHOUSE COLLEGE	Stone, N. H.	MSFC	Turner, J. M.	NSG 8020	1941
13	MOREHOUSE COLLEGE	Vaughn, W. W.	MSFC	Spight, C.	NSG 8039	1943
13	MOREHOUSE COLLEGE	Burch, J. L.	MSFC	Turner, J. M.	NSG 8043	1944
13	NEW MEX ST U-LAS CR	Salzman, J. A.	LERC	Armstrong, R. L.	NSG 3069	2758
13	NEW YORK UNIVERSITY	Schneck, P. B.	GSFC	Schwartz, J T	NSG 5032	2884
13	NEW YORK UNIVERSITY	Rosendahl, J. D.	HQ-SA	Glassgold, A. E.	NGR 33-016-196	2879
13	NO CAR A&T STATE U	Allario, F.	LARC	Yu, C.	NSG 1346	2985
13	N CAR CENTRAL UNIV	McAvoy, N.	GSFC	Dutta, J. M.	NSG 5120	2988
13	NO CAROLINA STATE U	Hohl, F.	LARC	Hassan, H. A.	NSG 1058	2994

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
13	NO CAROLINA STATE U	Miller, W. E.	LARC	Littlejohn, M. A.	NSG 1202	2997
13	NO CAROLINA STATE U	Mayes, W. H.	LARC	Hart, F. D.	NSG 1205	2998
13	NORTHWESTERN UNIV	Behrendt, D. R.	LERC	Waber, J. T.	NGR 14-007-131	1982
13	OHIO STATE UNIV	Boese, R. W.	ARC	Rao, K. N.	NSG 2175	3064
13	OHIO UNIVERSITY	Bonavito, N.	GSFC	Tanuka, T.	NAS 5-20885	3070
13	OLD DOMINION UNIV	Melfi, L. T., Jr.	LARC	Brock, F. J.	NSG 1271	3560
13	OLD DOMINION UNIV	Holmes, H. K.	LARC	Zuckerwar, A. J.	NSG 1324	3566
13	OLD DOMINION UNIV	Hohl, F	LARC	Harries, W. L.	NSG 1362	3575
13	OREGON STATE UNIV	Harris, J. W.	JSC	Schmitt, R. A.	NGL 38-002-039	3126
13	PAINE COLLEGE	Bannister, T. C.	MSFC	Owais, M.	NSG 8002	1948
13	PENN STATE U-UNIV PK	Spencer, N. W.	GSFC	Nisbet, J. S.	NSG 5212	3209
13	PENN STATE U-UNIV PK	Ballance, C. W., Jr.	WFC	Kendall, B. R.	NGL 39-009-032	3188
13	PENN STATE U-UNIV PK	Cauffman, D. P.	HQ-ST	Nisbet, J. S.	NGL 39-009-003	3185
13	POLY INST OF NY	Will, H. A.	LERC	Lederman, S	NSG 3108	2901
13	POLY INST OF NY	Taylor, W. W.	HQ-ST	Gross, S. H.	NGR 33-006-047	2892
13	PRINCETON UNIVERSITY	Honaker, W. C.	LARC	Miles, R. B.	NSG 1070	2716
13	PRINCETON UNIVERSITY	Thom, K.	HQ-RR	Tahn, R.	NASW 2975	2706
13	PRINCETON UNIVERSITY	Boggess, N. W	HQ-SA	Dicke, R. H.	NGR 31-001-202	2712
13	PURDUE UNIVERSITY	Harris, J. W.	JSC	Meyer, H. O.	NGR 15-005-157	2066
13	RENSSELAER POLY-NY	Wood, G. M	LARC	White, F. A.	NSG 1360	2914
13	RICE UNIVERSITY	Taylor, H. A., Jr.	GSFC	Cloutier, P. A.	NAS 5-23338	3340
13	RICE UNIVERSITY	Potter, A. E.	JSC	Stebbings, R. F.	NGR 44-006-156	3350
13	RICE UNIVERSITY	Lad, R. A.	LERC	Rorschach, H. E.	NGL 44-006-001	3346
13	RICE UNIVERSITY	Berge, L. H.	MSFC	Margrave, J. L.	NAS 8-32030	3342
13	RICE UNIVERSITY	Cauffman, D. P.	HQ-ST	Michel, F. C	NGL 44-006-012	3347
13	RICE UNIVERSITY	Taylor, W. W.	HQ-ST	Dessler, A. J	NGR 44-006-137	3349
13	RUTGERS UNIV-NEWARK	Beach, H. L., Jr.	LARC	Johnson, J. A., III	NSG 1314	2733
13	SAN FRAN STATE UNIV	Black, D. C	ARC	Hagar, C.	NCA 2-660703	1233
13	SAN JOSE STATE UNIV	Hewitt, J. E.	ARC	Tucker, A. B.	NCA 2-675708	1241
13	SO CAROLINA ST COL	Urban, E. W.	MSFC	Payne, J. E.	NSG 8044	253
13	STANFORD UNIVERSITY	Caroff, L. J.	ARC	Petrosian, V	NCA 2-745715	1297
13	STANFORD UNIVERSITY	Poppa, H. R	ARC	Boudart, M.	NCA 2-745717	1299
13	STANFORD UNIVERSITY	McKenzie, R. L	ARC	Hanson, R. K	NSG 2050	1342
13	STANFORD UNIVERSITY	Poppa, H. R.	ARC	Pound, G. M.	NSG 2249	1359
13	STANFORD UNIVERSITY	Davis, M. A.	GSFC	Helliwell, R. A.	NAS 5-20871	1275
13	STANFORD UNIVERSITY	Bissell, F. E.	GSFC	Walker, A. B., Jr	NSG 5131	1367
13	STANFORD UNIVERSITY	Hutchby, J. A.	LARC	Pearson, G. L.	NSG 1201	1335
13	STANFORD UNIVERSITY	Bass, B. G	MSFC	Walker, A. B., Jr.	NAS 8-31571	1280
13	STANFORD UNIVERSITY	Roberts, W.	MSFC	DaRosa, A. V	NAS 8-31769	1281
13	STANFORD UNIVERSITY	Potter, R.	MSFC	Fairbank, W. M.	NAS 8-32355	1283
13	STANFORD UNIVERSITY	Urban, E. W.	MSFC	Everitt, C. W	NAS 8-32605	1284
13	STANFORD UNIVERSITY	Potter, R. A.	MSFC	Fairbank, W. M	NGR 05-020-019	1317
13	STANFORD UNIVERSITY	Randolph, L. P	HQ-RR	Little, W. A.	NGL 05-020-242	1308
13	STANFORD UNIVERSITY	Thom, K	HQ-RR	Pantell, R. H.	NSG 7110	1371
13	STANFORD UNIVERSITY	Cauffman, D. P.	HQ-ST	Helliwell, R. A	NGL 05-020-008	1304
13	STANFORD UNIVERSITY	Cauffman, D. P.	HQ-ST	Crawford, F. W.	NGL 05-020-176	1307
13	STANFORD UNIVERSITY	Timothy, A. F.	HQ-ST	Sturrock, P. A.	NGL 05-020-272	1310
13	STANFORD UNIVERSITY	Taylor, W. W	HQ-ST	DaRosa, A. V.	NGR 05-020-001	1315
13	STATE UNIV NY-BUFFAL	Morris, J. F.	LERC	Shaw, D. T	NSG 7071	2938
13	STATE U NY-STONY BRK	Boese, R. W.	ARC	Lutz, B. L.	NCA 2-760601	2941
13	STATE U NY-STONY BRK	Harris, J. W	JSC	Bence, A. E	NGL 33-015-130	2942
13	STATE U NY-STONY BRK	Harris, J. W.	JSC	Papike, J. J.	NSG 9044	2963
13	TALLADEGA COLLEGE	Whitten, R. C.	ARC	Morrison, R. A	NSG 2217	1030
13	TALLADEGA COLLEGE	Dalins, I	MSFC	Breecher, J	NGR 01-007-009	1029
13	TEXAS A&M UNIVERSITY	Hatcher, N. W.	JSC	Newton, R. W	NAS 9-14817	3377
13	TEXAS A&M UNIVERSITY	Nowakowski, M. I	MSFC	Parker, D. I	NAS 8-32527	3369
13	UNION COLLEGE	McAvoy, N.	GSFC	Galantowicz, A	NGR 33-032-004	2967
13	UNIV ALA-HUNTSVILLE	Parnell, T. A	MSFC	Gregory, J. C	NAS 8-24953	1039

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
13	UNIV ALA-HUNTSVILLE	Tandberghanssen, E.	MSFC	Wu, S. T.	NAS 8-28097	1040
13	UNIV ALA-HUNTSVILLE	Chappell, C. R.	MSFC	Rush, J. E.	NAS 8-30563	1045
13	UNIV ALA-HUNTSVILLE	Parnell, T. A.	MSFC	Gregory, J. C.	NAS 8-31170	1046
13	UNIV ALA-HUNTSVILLE	Teuber, D. L.	MSFC	Knezovich, F. M.	NAS 8-31194	1048
13	UNIV ALA-HUNTSVILLE	Bowden, D. R.	MSFC	Christiensen, D.	NAS 8-31293	1049
13	UNIV ALA-HUNTSVILLE	Vaughn, O. H.	MSFC	Hung, R. J.	NAS 8-31729	1052
13	UNIV ALA-HUNTSVILLE	Fishman, G. J.	MSFC	Gregory, J. C.	NAS 8-31895	1053
13	UNIV ALA-HUNTSVILLE	Whitaker, A. F.	MSFC	Castle, J. G.	NAS 8-32398	1055
13	UNIV ALA-TUSCALOOSA	Moore, W. W., Jr.	MSFC	Liu, H. K.	NAS 8-30479	1061
13	UNIV ALA-TUSCALOOSA	Bensko, J.	MSFC	Hughes, T.	NAS 8-31979	1063
13	UNIV ALA-TUSCALOOSA	Finnell, S. E.	MSFC	Liu, H. K.	NAS 8-32386	1064
13	UNIV ALASKA-FAIRBNKS	Schmerling, E. R.	HQ-ST	Davis, T. N.	NGR 02-001-087	1070
13	UNIV ALASKA-FAIRBNKS	Schmerling, E. R.	HQ-ST	Akasofu, S. I.	NSG 7051	1072
13	UNIV OF ARIZONA	McAvoy, N.	GSFC	Lamb, W. E., Jr.	NSG 5022	1125
13	UNIV OF ARIZONA	Allen, R. E.	MSFC	Bier, M.	NAS 8-29566	1092
13	UNIV OF ARIZONA	King, J. H.	HQ-ST	Hsieh, K. C.	NGR 03-002-107	1114
13	UNIV OF ARIZONA	Schmerling, E. R.	HQ-ST	Sonett, C. P.	NSG 7024	1130
13	UNIV OF ARIZONA	Timothy, A. F.	HQ-ST	Levy, E. H.	NSG 7168	1137
13	UNIV OF ARIZONA	Timothy, A. F.	HQ-ST	Goldreich, P.	NSG 7342	1144
13	UNIV CALIF-BERKELEY	Poppa, H. R.	ARC	Everhart, T. E.	NCA 2-50705	1392
13	UNIV CALIF-BERKELEY	Billman, K. W.	ARC	Gustafson, T. K.	NSG 2151	1424
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Anderson, K. A.	NAS 5-20079	1374
13	UNIV CALIF-BERKELEY	Davis, M. A.	GSFC	Mozer, F. S.	NAS 5-20080	1375
13	UNIV CALIF-BERKELEY	Gallagher, W. F.	GSFC	Heckman, H. H.	NAS 5-20995	1377
13	UNIV CALIF-BERKELEY	Barrowman, J. S.	GSFC	Buffington, A.	NAS 5-24165	1381
13	UNIV CALIF-BERKELEY	Barrowman, J. S.	GSFC	Price, P. B.	NAS 5-24166	1382
13	UNIV CALIF-BERKELEY	Bissell, E. E.	GSFC	Moser, F. S.	NGR 05-003-239	1404
13	UNIV CALIF-BERKELEY	Harris, J. W.	JSC	Reynolds, J. H.	NGL 05-003-409	1401
13	UNIV CALIF-BERKELEY	Ondrak, B. T.	MSFC	Price, P. B.	NAS 8-29603	1384
13	UNIV CALIF-L ANGELES	Lincoln, K. A.	ARC	Knuth, E. L.	NCA 2-390702	1472
13	UNIV CALIF-L ANGELES	Davis, M. A.	GSFC	Russell, C. T.	NAS 5-20064	1464
13	UNIV CALIF-L ANGELES	Harris, J. W.	JSC	Kaplan, I. R.	NGR 05-007-289	1482
13	UNIV CALIF-L ANGELES	Keating, G. M.	LARC	Knuth, E. L.	NGR 05-007-416	1490
13	UNIV CALIF-L ANGELES	Taylor, W. W.	HQ-ST	Holzer, R. E.	NGR 05-007-276	1481
13	UNIV CALIF-L ANGELES	Timothy, A. F.	HQ-ST	Ulrich, R. K.	NSG 7158	1506
13	UNIV CALIF-RIVERSIDE	Temkin, A.	GSFC	Poe, R. T.	NGL 05-008-005	1516
13	UNIV CALIF-SAN DIEGO	Corrigan, J. P.	GSFC	McIlwain, C. E.	NAS 5-21055	1519
13	UNIV CALIF-SAN DIEGO	Shulman, A. R.	GSFC	Lee, S. H.	NGR 05-009-260	1550
13	UNIV CALIF-SAN DIEGO	Woollam, J. A.	LERC	Luo, H. L.	NSG 3103	1556
13	UNIV CALIF-SAN DIEGO	Oran, W. A.	MSFC	McIlwain, C. E.	NAS 8-31145	1526
13	UNIV CALIF-SAN DIEGO	Sofia, S.	HQ-SA	Peterson, L. E.	NGL 05-005-003	1529
13	UNIV CALIF-SAN DIEGO	Cauffman, D. P.	HQ-ST	McIlwain, C. E.	NGL 05-005-007	1531
13	UNIV CALIF-SAN DIEGO	Taylor, W. W.	HQ-ST	Banks, P. M.	NGR 05-009-075	1540
13	UNIV CALIF-SAN DIEGO	Cauffman, D. P.	HQ-ST	Fejer, J. A.	NGR 05-009-076	1541
13	UNIV CALIF-SAN DIEGO	Bohlin, J. D.	HQ-ST	Hudson, H. S.	NSG 7100	1560
13	UNIV CALIF-SAN DIEGO	Timothy, A. F.	HQ-ST	Peterson, L. E.	NSG 7161	1563
13	UNIV CALIF-S BARBARA	Cassen, P.	ARC	Peale, S. J.	NCA 2-680701	1576
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-11067	1993
13	UNIV OF CHICAGO	Davis, M. A.	GSFC	Simpson, J. A.	NAS 5-20674	1994
13	UNIV OF CHICAGO	Harris, J. W.	JSC	Anders, E.	NGL 14-001-167	1999
13	UNIV OF CHICAGO	Harris. J. W.	JSC	Smith, J. V.	NGL 14-001-171	2001
13	UNIV OF CINCINNATI	Blue, J. W.	LERC	Jha, S.	NSG 3091	3084
13	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Rottman, G. T.	NSG 5178	1700
13	UNIV COLORADO-BOLDR	Harris, J. W.	JSC	Larson, E. E.	NGR 06-003-181	1688
13	UNIV COLORADO-BOLDR	Bass, B. G.	MSFC	Dulk, G. A.	NAS 8-31378	1676
13	UNIV COLORADO-BOLDR	Mitchell, J. L.	HQ-SA	Speiser, T. W.	NGR 06-003-215	1691
13	UNIV COLORADO-BOLDR	Strickland, A. T.	HQ-SL	Levine, J.	NSG 7344	1711
13	UNIV COLORADO-BOLDR	Timothy, A. F.	HQ-ST	Cooper, J.	NGL 06-003-057	1681

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
13	UNIV COLORADO-BOLDR	Timothy, A. F.	HQ-ST	Hansen, E.	NSG 7130	1703
13	UNIV COLORADO-BOLDR	Timothy, A. F.	HQ-ST	Chipman, E. G.	NSG 7165	1704
13	UNIV COLORADO-BOLDR	Timothy, A. F.	HQ-ST	Roberts, W. O.	NSG 7166	1705
13	UNIV COLORADO-BOLDR	Bohlin, D. J.	HQ-ST	Dulk, G. A.	NSG 7287	1708
13	UNIV COLORADO-BOLDR	Timothy, A. F.	HQ-ST	Thomas, R. N.	NSG 7291	1709
13	UNIV DC-MT VERNON SQ	Ormes, J. F.	GSFC	Whiteside, H.	NGR 09-050-001	1820
13	UNIV DC-MT VERNON SQ	Mentall, J. E.	GSFC	Morgan, H. D.	NSG 5192	1825
13	UNIV OF DENVER	Munoz, R. M	ARC	Murcray, D. G.	NAS 2-8200	1714
13	UNIV OF DENVER	Hobbs, R. W	GSFC	Edrich, J.	NAS 5-23190	1716
13	UNIV OF DENVER	Schmerling, E. R.	HQ-ST	Patel, V. L.	NGR 06-004-058	1722
13	UNIV OF DENVER	Taylor, W. W.	HQ-ST	Roederer, J. G.	NGR 06-004-060	1723
13	UNIV OF FLORIDA	Thom, K.	HQ-RR	Schneider, R. T.	NGL 10-005-089	1858
13	UNIV OF FLORIDA	Thom, K.	HQ-RR	Schneider, R. T.	NSG 7299	1871
13	UNIV OF GEORGIA	Clingman, J. H.	MSFC	Burkhard, D. G	NAS 8-31565	1952
13	UNIV OF GEORGIA	Wasserman, D	MSFC	Burkhard, D. G	NAS 8-32149	1953
13	UNIV OF HAWAII-MANOA	Jordon, S. D.	HQ-SA	McAllister, H. C.	NASR 5	1956
13	UNIV HOUSTON-HOUSTON	Kondo, Y	JSC	Hildebrandt, A. F	NGR 44-005-137	3413
13	UNIV HOUSTON-CL LAKE	Harris, J. W.	JSC	Blanford, G. E.	NSG 9043	3422
13	UNIV ILLINOIS-URBANA	Spencer, N. W.	GSFC	Sechrist, C. F., Jr.	NSG 5213	2040
13	UNIV ILLINOIS-URBANA	Hohl, F.	LARC	Miley, G. H.	NSG 1063	2031
13	UNIV ILLINOIS-URBANA	Dunning, J. W., Jr	LERC	Verdeyen, J. T	NGR 14-005-200	2029
13	UNIV ILLINOIS-URBANA	Ordin, P	LERC	Strehlow, R. A.	NSG 3008	2036
13	UNIV OF IOWA	Davis, M. A.	GSFC	Frank, L. A	NAS 5-11064	2105
13	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-20093	2108
13	UNIV OF IOWA	Davis, M. A	GSFC	Frank, L. A.	NAS 5-20094	2109
13	UNIV OF IOWA	Suddeth, D. H	GSFC	VanAllen, J. A	NAS 5-23726	2110
13	UNIV OF IOWA	Coffee, C. W., Jr.	LARC	VanAllen, J. A.	NAS 1-13129	2103
13	UNIV OF IOWA	Cauffman, D. P.	HQ-ST	VanAllen, J. A.	NGL 16-001-002	2111
13	UNIV OF IOWA	Cauffman, D. P.	HQ-ST	Montgomery, D. C	NGL 16-001-043	2112
13	UNIV OF KENTUCKY	Harris, J. W.	JSC	Ehmann, W. D.	NGR 18-001-058	2164
13	UNIV OF KENTUCKY	Cochran, T. H.	LERC	Lienhard, J. H.	NAS 3-20397	2159
13	UNIV OF KENTUCKY	Haggard, J. B	LERC	Hsu, N. N.	NGR 18-001-083	2165
13	UNIV MARYLAND-COL PK	Davis, M. A	GSFC	Gloeckler, G.	NAS 5-11063	2234
13	UNIV MARYLAND-COL PK	Davis, M. A	GSFC	Gloeckler, G	NAS 5-20062	2235
13	UNIV MARYLAND-COL PK	Conrath, B. J	GSFC	Ponnamperuma, C. A.	NAS 5-23237	2240
13	UNIV MARYLAND-COL PK	Kastner, S. O	GSFC	Martin, F. W.	NCA 5-65	2252
13	UNIV MARYLAND-COL PK	Ogilvie, K. W.	GSFC	Coplan, M. A.	NGR 21-002-291	2262
13	UNIV MARYLAND-COL PK	Teegarden, B. J.	GSFC	Gloeckler, G.	NGR 21-002-316	2263
13	UNIV MARYLAND-COL PK	Bufton, J. L.	GSFC	Currie, D. G.	NGR 21-002-444	2270
13	UNIV MARYLAND-COL PK	Johnson, T. S.	GSFC	Alley, C. O.	NSG 5129	2290
13	UNIV MARYLAND-COL PK	Bissell, F. E.	GSFC	Moore, J. H.	NSG 5177	2294
13	UNIV MARYLAND-COL PK	Simoneau, R. J.	LERC	Sengers, J. V.	NGR 21-002-344	2265
13	UNIV MARYLAND-COL PK	Coles, W. D	LERC	Spain, I. L.	NGR 21-002-400	2269
13	UNIV MARYLAND-COL PK	Lundholm, J. G., Jr	HQ-RR	Weber, J.	NSG 7196	2298
13	UNIV MARYLAND-COL PK	Timothy, A. F.	HQ-ST	Kundu, M. R.	NGR 21-002-199	2259
13	UNIV MARYLAND-COL PK	Timothy, A. F	HQ-ST	Kundu, M. R.	NSG 7285	2303
13	UNIV MARYLAND-COL PK	Greenwood, L. R.	HQ-SU	Ginter, M. L.	NSG 7340	2305
13	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Singh, G	NGR 21-119-003	2310
13	UNIV OF MASS-AMHERST	Harris, J. W.	JSC	Haggerty, S. E.	NGL 22-010-089	2499
13	UNIV MICH-ANN ARBOR	Trainor, J. H.	GSFC	MacNee, A. B.	NAS 5-22875	2520
13	UNIV MICH-ANN ARBOR	Bissell, F. E.	GSFC	Sharp, W. E.	NGR 23-005-360	2539
13	UNIV MICH-ANN ARBOR	King, J. H.	HQ-ST	Samir, U	NGR 23-005-320	2538
13	U MINN-MNPLS-ST PAUL	Davis, M. A	GSFC	Kellogg, P. J.	NAS 5-20837	2578
13	U MINN-MNPLS-ST PAUL	Bissell, F. E	GSFC	Winckler, J. R.	NSG 5088	2597
13	U MINN-MNPLS-ST PAUL	Harris, J. W	JSC	Alexander, E. C., Jr	NGL 24-005-225	2587
13	U MINN-MNPLS-ST PAUL	Harris, J. W	JSC	Murthy, V. R.	NGR 24-005-223	2590
13	U MINN-MNPLS-ST PAUL	Sovey, J. S.	LERC	Wehner, G. K.	NSG 3041	2595
13	U MINN-MNPLS-ST PAUL	Roberts, W. T.	MSFC	Winckler, J. R	NAS 8-31510	2582

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
13	U MINN-MNPLS-ST PAUL	Lundholm, J. G., Jr.	HQ-RR	Scriven, L. E.	NSG 7296	2605
13	U MINN-MNPLS-ST PAUL	Cauffman, D. P.	HQ-ST	Winckler, J. R.	NGL 24-005-008	2584
13	UNIV MO-ROLLA	Smi, R. E.	MSFC	Stampfer, J. F., Jr.	NAS 8-31538	2645
13	UNIV NEBRASKA-LINCLN	Kalet, M. W.	GSFC	Samson, J. R.	NAS 5-22903	2671
13	UNIV NEW HAMP-DURHAM	Timothy, A. F.	HQ-ST	Chupp, E. L.	NGL 30-002-018	2689
13	UNIV NEW HAMP-DURHAM	Cauffman, D. P.	HQ-ST	Arnoldy, R. L.	NGR 30-002-054	2692
13	UNIV NEW HAMP-DURHAM	Timothy, A. F.	HQ-ST	Chupp, E. L.	NGR 30-002-104	2693
13	UNIV OF NEW MEXICO	Calahan, H. D.	HQ-SA	Ahluwalia, H. S.	NGR 32-004-086	2773
13	UNIV N CAR-CHPL HIL	Parnell, T. A.	MSFC	Childs, C. B.	NAS 8-26601	3005
13	UNIV OKLAHOMA-NORMAN	Bryant, F. R.	LARC	Kahng, S. K.	NSG 1404	3119
13	UNIV OREGON-EUGENE	Scargle, J. D.	ARC	Holt, I.	NCA 2-587701	3130
13	UNIV OREGON-EUGENE	Whiting, E. E.	ARC	Crasemann, B.	NGR 38-003-036	3133
13	UNIV OREGON-EUGENE	Vorreiter, J. W.	ARC	Donnelly, R. J.	NSG 2208	3134
13	UNIV OREGON-EUGENE	Harris, J. W.	JSC	Weill, D. F.	NGL 38-003-022	3131
13	UNIV OF PITTSBURGH	Temkin, A.	GSFC	Gerjuoy, E.	NGL 39-011-035	3227
13	UNIV OF PITTSBURGH	Harris, J. W.	JSC	Hapke, B. W.	NSG 9056	3240
13	UNIV OF PITTSBURGH	Flood, D. J.	LERC	Wallace, W. E.	NSG 3168	3236
13	UNIV OF ROCHESTER	Stallcop, J. R.	ARC	George, T. F.	NSG 2198	2970
13	UNIV OF ROCHESTER	Osantowski, J. F.	GSFC	Baumeister, P. W.	NAS 5-20028	2968
13	UNIV SAN FRANCISCO	Taketa, S. T.	ARC	Benton, E. V.	NAS 2-7059	1586
13	UNIV SAN FRANCISCO	Souza, K. A.	ARC	Benton, E. V.	NAS 2-9504	1588
13	UNIV SAN FRANCISCO	Thirolf, R. G.	JSC	Benton, E. V.	NAS 9-15337	1592
13	UNIV SAN FRANCISCO	Parnell, T. A.	MSFC	Benton, E. V.	NAS 8-26758	1589
13	UNIV OF SANTA CLARA	Whitten, R. C.	ARC	McCormick, P. T.	NCA 2-685707	1599
13	UNIV OF SANTA CLARA	Dyal, P.	ARC	Barker, W. A.	NCA 2-685713	1604
13	UNIV OF SANTA CLARA	Dyal, P.	ARC	Parkin, C. W.	NSG 2075	1611
13	UNIV OF SANTA CLARA	Steger, J. L.	ARC	Vinokur, M.	NSG 2086	1612
13	UNIV OF SOUTHERN CAL	Bissell, E. E.	GSFC	Judge, D. L.	NSG 5108	1630
13	UNIV OF SOUTHERN CAL	Unavailable	JSC	Unavailable	NAS 9-6164	1619
13	UNIV OF SOUTHERN CAL	Ruff, R. C.	MSFC	Wilcox, W. R.	NAS 8-29847	1618
13	UNIV OF SOUTHERN CAL	Calahan, H. D.	HQ-SA	Intriligator, D. S.	NGR 05-018-185	1627
13	UNIV OF SOUTHERN CAL	Schmerling, E. R.	HQ-SG	Vasyliunas, V. M.	NGR 05-018-181	1626
13	UNIV SO MISSISSIPPI	Wood, G. M	LARC	Rayborn, G. H.	NSG 1380	2635
13	UNIV SOUTHWESTERN LA	Chubb, D. L.	LERC	Matese, J. J	NSG 3049	2197
13	UNIVERSITY OF SPLIT	Dannenberg, R. E.	ARC	Slapnicar, P. I.	NSG 7163	3757
13	UNIV OF SYDNEY	Melfi, L. T., Jr.	LARC	Bird, G. A.	NSG 7272	3741
13	UNIV TEXAS-AUSTIN	Eichelman, W. F.	JSC	Latham, G. V.	NAS 9-14581	3430
13	UNIV TEXAS-AUSTIN	Eichelman, W. F.	JSC	Latham, G. V.	NAS 9-14810	3431
13	UNIV TEXAS-DALLAS	Hoffman, R. A.	GSFC	Winningham, J. D.	NAS 5-23804	3467
13	UNIV TEXAS-DALLAS	Bissell, E. E.	GSFC	Heikkila, W. J	NGR 44-004-124	3474
13	UNIV TEXAS-DALLAS	Cauffman, D. P.	HQ-ST	Heikkila, W. J.	NGR 44-004-030	3472
13	UNIV TEXAS-EL PASO	Breckenridge, R. A.	LARC	Eastman, M. P.	NSG 1316	3480
13	U TEX HEALTH CTR-SA	Harris, J. W.	JSC	Morgan, J. W.	NSG 9049	3485
13	UNIV TEXAS-S ANTONIO	Spencer, N. W.	GSFC	Burch, J. L.	NSG 5214	3488
13	UNIV OF TOLEDO	Connolley, D. J.	LERC	Rush, W. F.	NSG 3099	3094
13	UNIV OF UTAH	Randolph, L. P.	HQ-RR	Vali, V.	NASW 2967	3501
13	UNIV OF WASHINGTON	Thom, K.	HQ-RR	Hertzberg, A.	NGL 48-002-044	3666
13	UNIV OF WASHINGTON	Cauffman, D. P.	HQ-ST	Parks, G. K.	NGR 48-002-154	3673
13	UNIV WISC-MADISON	Squires, R. K.	GSFC	Suomi, V. E	NAS 5-20974	3697
13	UNIV WISC-MADISON	Cauffman, D. P.	HQ-ST	Scherb, F.	NGR 50-002-162	3716
13	VANDERBILT UNIVERSTY	Hohl, F.	LARC	Lee, J. H	NSG 1232	3313
13	VANDERBILT UNIVERSTY	Hohl, F.	LARC	Lee, J. H.	NSG 1235	3314
13	VANDERBILT UNIVERSTY	Exton, R. J.	LARC	Tellinghuisen, J. B.	NSG 1408	3315
13	VANDERBILT UNIVERSTY	Nichols, R. L.	MSFC	Kinser, D. L.	NAS 8-30656	3309
13	VIRGINIA POLY INST	Posey, J.	LARC	Nayfeh, A. H.	NAS 1-13884	3616
13	VIRGINIA POLY INST	Smith, A.	LARC	Sanzone, G.	NSG 1020	3628
13	VIRGINIA STATE COL	Singh, J. J.	LARC	Stronach, C. E.	NSG 1342	3655
13	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Walker, R. M.	NGL 26-008-065	2657

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
13	WASHINGTON UNIVERSTY	Heyman, J. S.	LARC	Miller, J. G	NSG 1392	2660
13	WAYNE STATE UNIV	Brandhorst, H. W., Jr.	LERC	Wang, F. Y.	NSG 3081	2571
13	WILLIAMS COLLEGE	Reinhardt, V. S.	GSFC	Crampton, S. B.	NAS 5-23520	2501
13	XAVIER UNIV-LA	Wood, G. M.	LARC	Ioup, J. W.	NSG 1361	2199
19	ALFRED UNIVERSITY	Taylor, K. R.	MSFC	Lacourse, W. C.	NAS 8-31711	2779
19	BOSTON UNIVERSITY	Taylor, W. W.	HQ-ST	Mendillo, M.	NSG 7254	2321
19	CALIF INST OF TECH	Harris, J. W.	JSC	Ahrens, T. J.	NSG 9019	1207
19	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Albee, A. L.	NSG 7125	1198
19	CASE WESTERN RESERVE	Nichols, L. D.	LERC	Reshotko, E.	NGL 36-003-064	3012
19	CASE WESTERN RESERVE	Robson, R. R.	LERC	Topich, J. A.	NSG 3131	3031
19	CLARKSON COL OF TECH	Tatler, K. R.	MSFC	Cole, R.	NAS 8-31708	2791
19	CLARKSON COL OF TECH	Taylor, K. R.	MSFC	Wilcox, W. R.	NAS 8-31709	2792
19	COLORADO STATE UNIV	Domitz, S.	LERC	Kaufman, H. R.	NSG 3038	1654
19	COLUMBIA UNIVERSITY	Smith, D. E.	GSFC	Scholz, C. H.	NGR 33-008-146	2810
19	COLUMBIA UNIVERSITY	Seltzer S M.	MSFC	Likins, P. W.	NAS 8-32212	2807
19	GEORGE WASHINGTON U	Levine, D. M.	GSFC	Lang, R. H.	NAS 5-23809	1768
19	GEORGIA INST OF TECH	Hohl, F.	LARC	Clement, J. D.	NSG 1288	1924
19	GEORGIA INST OF TECH	Bianca, C. J.	MSFC	Hanagud, S. V.	NAS 8-30617	1912
19	HAMPTON INSTITUTE	Erickson, W. D.	LARC	Darden, G. C.	NAS 1-14832	3527
19	HAMPTON INSTITUTE	Hoge, F. E.	WFC	Trehan, A. K.	NGR 47-020-006	3529
19	HUMBOLDT STATE UNIV	Padrick, B. D.	ARC	Hankins, D.	NSG 2244	1225
19	LEHIGH UNIVERSITY	Taylor, K. R	MSFC	VanDerHoff, J. W.	NAS 8-31706	3158
19	LEHIGH UNIVERSITY	Taylor, K. R	MSFC	Micale, E. J.	NAS 8-31707	3159
19	MASS INST OF TECH	Gluyas, R. L.	LERC	Senturia, S. D	NSG 3061	2462
19	MASS INST OF TECH	Adams, W. R	MSFC	Gatos, H. C.	NAS 8-30576	2385
19	MORGAN STATE UNIV	Pohly, J. G.	HQ-P	Proctor, N. K.	NGT 21-025-006	2230
19	NEW MEX ST U-LAS CR	Pincus, R.	GSFC	Sayles, A., Jr	NAS 5-20681	2744
19	NEW MEX ST U-LAS CR	Schlimmer, G. E	KSC	Unavailable	NAS10-8712	2754
19	OHIO STATE UNIV	Costes, N. C.	MSFC	Mueller, I. I.	NAS 8-31195	3054
19	OLD DOMINION UNIV	Kelsall, T. N.	GSFC	Becher, J.	NSG 5053	3583
19	OLD DOMINION UNIV	Hohl, F	LARC	Harries, W. L.	NSG 1040	3541
19	OLD DOMINION UNIV	Gapcynski, J. P.	LARC	Breedlove, W. J., Jr.	NSG 1152	3549
19	OLD DOMINION UNIV	Keating, G. M	LARC	Goglia, G. L.	NSG 1207	3553
19	PENN STATE U-UNIV PK	Duke, J. R.	WFC	Hale, L. C	NAS 6-2602	3180
19	PENN STATE U-UNIV PK	Ballance, C. W., Jr	WFC	Hale, L. C.	NSG 6004	3210
19	PRINCETON UNIVERSITY	Williams, T. S., Jr.	LARC	Hargraves, R. B.	NAS 1-9705	2695
19	RENSSELAER POLY-NY	Adams, W. R.	MSFC	Wiedemeier, H.	NAS 8-28307	2904
19	RENSSELAER POLY-NY	Adams, W. R.	MSFC	Wiedemeier, H.	NAS 8-30578	2905
19	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedemeier, H.	NAS 8-32639	2907
19	RENSSELAER POLY-NY	Gevarter, W. B.	HQ-RE	Shen, C. N	NSG 7184	2918
19	SO UNIV-BATON ROUGE	Kent, M. I.	MSFC	Liu, K. H.	NGR 19-005-003	2186
19	STANFORD UNIVERSITY	Aiken, T. N.	ARC	Karamcheti, K	NSG 2007	1340
19	STANFORD UNIVERSITY	Ahtye, W. F.	ARC	Karamcheti, K	NSG 2215	1356
19	STANFORD UNIVERSITY	Ostrow, H.	GSFC	MacOvski, A	NAS 5-23522	1277
19	STANFORD UNIVERSITY	Mangus, J. D.	GSFC	Walker, A. B., Jr.	NSG 5132	1368
19	STANFORD UNIVERSITY	McCoy, J. E.	JSC	Helliwell, R. A	NAS 9-15342	1286
19	UNIV ALA-HUNTSVILLE	Adams, W. R.	MSFC	Walter, H. U	NAS 8-28304	1042
19	UNIV ALASKA-FAIRBNKS	Ballance, C. W., Jr	WFC	Davis, T. N.	NSG 6014	1071
19	UNIV ARKANSAS-FAYETV	Demel, K. E	JSC	Waite, W. P	NAS 9-14251	1151
19	UNIV CALIF-BERKELEY	Padrick, B. D.	ARC	Colwell, R. A	NSG 2243	1428
19	UNIV CALIF-BERKELEY	Roberts, W. T	MSFC	Mozel, F. S	NAS 8-31346	1385
19	UNIV CALIF-BERKELEY	Schmerling, E. R.	HQ-ST	Anderson, K. A.	NGL 05-003-017	1397
19	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Russell, C. T	NAS 2-8808	1460
19	UNIV CALIF-L ANGELES	Adams, W. R	MSFC	Yue, A. S	NAS 8-30579	1468
19	UNIV CALIF-L ANGELES	Taylor, W. W	HQ-ST	Kennel, C. F	NGL 05-007-190	1477
19	UNIV CALIF-SAN DIEGO	Woollam, J. A.	LERC	Webb, G. W	NSG 3055	1555
19	UNIV CALIF-SAN DIEGO	Goldstein, B. F	HQ-SL	Suess, H. E	NGL 05-009-005	1534
19	UNIV CALIF-S BARBARA	Harris, J. W	JSC	Fuller, M. D	NSG 9020	1584

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
19	UNIV COLORADO-BOLDR	Sinnott, D. B.	ARC	Stewart, A. I.	NAS 2-8816	1666
19	UNIV COLORADO-BOLDR	Hall, C. F.	ARC	Stewart, I.	NAS 2-9477	1667
19	UNIV COLORADO-BOLDR	Bissell, E. E.	GSFC	Barth, C. A.	NSG 5103	1696
19	UNIV DC-HARVARD GA	Holland, A. C.	WFC	Curtis, W. C.	NSG 6003	1819
19	UNIV OF DENVER	Goldberg, R.	GSFC	Barcus, J. R.	NAS 5-22981	1715
19	UNIV OF FLORIDA	Taylor, K. R.	MSFC	Goldberg, E. P.	NSG 8031	1872
19	UNIV OF HAWAII-MANOA	Shirey, W. H.	HQ-SL	Berg, E.	NSG 7179	1969
19	UNIV HOUSTON-HOUSTON	Ballance, C. W., Jr.	WFC	Sheldon, W. R.	NSG 6008	3417
19	UNIV ILLINOIS-URBANA	Bufton, J. L.	GSFC	Gardner, C. S.	NSG 5049	2039
19	UNIV ILLINOIS-URBANA	Jordan, F. L., Jr.	LARC	Ormsbee, A. I.	NSG 1400	2032
19	UNIV ILLINOIS-URBANA	Ballance, C. W., Jr.	WFC	Bowhill, S. A.	NGR 14-005-181	2027
19	UNIV MARYLAND-COL PK	Smith, D. E.	GSFC	Currie, D. G.	NGR 21-002-390	2267
19	UNIV MARYLAND-COL PK	OKeefe, J. A.	GSFC	Pai, S. I.	NSG 5083	2284
19	UNIV MARYLAND-COL PK	Wasilewski, P. J.	GSFC	Weidner, J. R.	NSG 5112	2287
19	UNIV MARYLAND-COL PK	Cauffman, D. P.	HQ-ST	Wu, C. S.	NGL 21-002-005	2253
19	UNIV MD-EASTRN SHORE	Fitzmaurice, M. W.	GSFC	Singh, G.	NGR 21-119-001	2308
19	UNIV OF MIAMI	Williams, D.	GSFC	Hiser, H. W.	NAS 5-22417	1874
19	UNIV MICH-ANN ARBOR	Ruff, R. C.	MSFC	Carignan, G. R.	NAS 8-31987	2526
19	UNIV MICH-ANN ARBOR	Chappell, C. R.	MSFC	Carignan, G. R.	NAS 8-32332	2527
19	UNIV MICH-ANN ARBOR	Jones, C. O.	MSFC	Torr, M. R.	NAS 8-32569	2528
19	U MINN-MNPLS-ST PAUL	Morris, J. F.	LERC	Chanin, L. M.	NSG 3094	2596
19	U MINN-MNPLS-ST PAUL	Ballance, C. W., Jr.	WFC	Arnoldy, R. J.	NSG 6005	2598
19	U MINN-MNPLS-ST PAUL	Ballance, C. W., Jr.	WFC	Nier, A. O.	NSG 6009	2599
19	U MINN-MNPLS-ST PAUL	Taylor, W. L.	HQ-ST	Kellogg, P. J.	NSG 7108	2601
19	U MINN-MNPLS-ST PAUL	Cauffman, D. P.	HQ-ST	Cahill, L. J., Jr.	NSG 7237	2603
19	UNIV OF NEVADA-RENO	Smith, R. E.	MSFC	Telford, J. W.	NAS 8-31441	2679
19	UNIV OF PENNSYLVANIA	Taylor, K. R.	MSFC	Zemel, J. N.	NAS 8-31702	3218
19	UNIV OF PITTSBURGH	Ballance, C. W., Jr.	WFC	Zipf, E. C., Jr.	NSG 6011	3237
19	UNIV OF SOUTHERN CAL	Adams, W. R.	MSFC	Wilcox, W. R.	NAS 8-28305	1617
19	UNIV STHN COLORADO	Lofren, G.	JSC	Smith, R. K.	NSG 9051	1733
19	UNIV TEXAS-AUSTIN	Flinn, E. A.	HQ-ES	Dorman, J. H.	NSG 7159	3454
19	UNIV TEXAS-AUSTIN	Shirey, W. H.	HQ-SL	Shelus, P. J.	NSG 7162	3455
19	UNIV TEXAS-AUSTIN	Shirey, W. H	HQ-SM	Silverberg, E. C.	NASW 2974	3436
19	UNIV TEXAS-DALLAS	Chappell, C. R.	MSFC	Hanson, W. B.	NAS 8-31775	3468
19	UNIV TEXAS-DALLAS	Ballance, C. W., Jr.	WFC	Christensen, A. B.	NSG 6012	3477
19	UNIV OF TOLEDO	Fellows, R. M.	HQ-SL	Delsemme, A. H.	W-14168	3103
19	UNIV OF UTAH	Williams, T. S., Jr	LARC	Shorthill, R. W.	NAS 1-12705	3495
19	UNIV OF WASHINGTON	Blanchard, W. B.	ARC	Hodge, P. W.	NSG 2131	3674
19	VIRGINIA POLY INST	Maahs, H. G.	LARC	Frair, K. L.	NSG 1275	3642
21	ARIZONA STATE UNIV	Lee, G.	MSFC	Woodfill, M. C.	NAS 8-32230	1074
21	BOWIE STATE COLLEGE	Lefferts, E. J.	GSFC	Srivastava, S.	NGR 21-027-004	2202
21	CASE WESTERN RESERVE	Neustadter, H. E.	LERC	Zacks, S.	NSG 3078	3027
21	CHRISTPHR NEWPRT COL	Lansing, D. L.	LARC	Buoncristiani, A. M.	NSG 1429	3515
21	COLLEGE OF WM & MARY	Knight, J. C.	LARC	Feyock, S.	NSG 1435	3522
21	DREXEL UNIVERSITY	Zeleznik, F. J.	LERC	Rosen, G. H.	NSG 3090	3153
21	DUKE UNIVERSITY	Ford, W. F.	LERC	Smith, D. A.	NSG 3160	2980
21	IOWA STATE UNIV	Steger, J. L.	ARC	Tannehill, J. C.	NCA 2-340706	2093
21	LEHIGH UNIVERSITY	Everett, R. A., Jr.	LARC	Erdogan, F.	NGR 39-007-011	3167
21	MARY BALDWIN COLLEGE	Campbell, J. W.	LARC	Sawyer, J. O.	NSG 1209	3532
21	MISSISSIPPI STATE U	Weilmuenster, K. J.	LARC	Thompson, J. F.	NSG 1242	2623
21	NEW YORK UNIVERSITY	South, J. C., Jr.	LARC	Garabedian, P. R.	NGR 33-016-167	2878
21	NORFOLK STATE COL	Shoosmith, J. N	LARC	Thorne, K. S.	NSG 1014	3533
21	OHIO STATE UNIV	Steger, J. L.	ARC	Nakamura, S.	NCA 2-565701	3055
21	OLD DOMINION UNIV	Conway, E. J.	LARC	Heinbockel, J. H	NSG 1426	3581
21	PENN STATE U-UNIV PK	Dixon, G. V.	LARC	Gumas, G. P.	NSG 1457	3199
21	SO ILL UNIV-CARBONDL	Callas, G. P.	ARC	McCalla, T. M.	NSG 2238	1991
21	STANFORD UNIVERSITY	Warming, R. F.	ARC	Golub, G. H.	NCA 2-745712	1296
21	STANFORD UNIVERSITY	Shoosmith, J. N.	LARC	Golub, G. H.	NSG 1443	1339

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
21	UNIV DC-MT VERNON SQ	Fuchs, A. J.	GSFC	Bakshi, J. S.	NGR 09-050-020	1823
21	UNIV DC-MT VERNON SQ	Lefferts, E. J.	GSFC	Bakshi, J. S.	NSG 5122	1824
21	UNIV HOUSTON-HOUSTON	Brow e, I. D	JSC	Decell, H. P	NAS 9-15000	3406
21	UNIV HOUSTON-HOUSTON	Cohen, J. H	JSC	Ostrofsky, B.	NAS 9-15215	3408
21	UNIV ILLINOIS-CHICGO	Randolph, L. P.	HQ-RR	Barcilon, V.	NSG 7247	2020
21	UNIV OF KANSAS	Linebarger, R. N	ARC	Haralick, R. M.	NCA 2-365701	2127
21	UNIV MARYLAND-COL PK	Pontious, C. E.	HQ-RF	Minker, J	NGR 21-002-270	2261
21	UNIV OF MIAMI	Tucker, J. H.	LARC	Tapia, M. A.	NSG 1436	1884
21	UNIV OF SO FLORIDA	Park, S. K.	LARC	Tsokos, C. P	NSG 1159	1889
21	UNIV TENNESSEE-KNOXV	Smith, R. E.	LARC	Baker, A. J.	NSG 1391	3293
21	UNIV TEXAS-AUSTIN	Fuchs, A. J.	GSFC	Tapley, B. D.	NSG 5154	3452
21	UNIV TEXAS-AUSTIN	Shoosmith, J. N.	LARC	Daniel, J. W	NSG 1440	3446
21	UNIV OF VIRGINIA	Bowles, R. L	LARC	Brown, R. L., Jr	NSG 1335	3601
21	UNIV WISC-MADISON	Campbell, J. W.	LARC	Johnson, R. S	NSG 1196	3720
21	VIRGINIA POLY INST	Campbell, J. W	LARC	Myers, R. H	NSG 1376	3648
22	AUBURN UNIV-AUBURN	Cummings, R. E.	MSFC	Vachon, R. I.	NAS 8-30654	1015
22	CAL POLY ST U-S LUIS	Maisel, M. D.	ARC	Grimes, J. F	NCA 2-678701	1208
22	CAL STATE U-NRTHRDGE	Anderson, K. F.	DFRC	Abbott, R. J.	NSG 4011	1223
22	ILL INST OF TECH	White, J.	ARC	Forrester, R	NCA 2-320701	1975
22	MASS INST OF TECH	Shoosmith, J. N.	LARC	Moses, J.	NSG 1323	2441
22	MISSISSIPPI STATE U	Hogge, J. E.	LARC	Butler, C. M	NSG 1375	2626
22	PENN STATE U-UNIV PK	Smith, R. F	LARC	Stocker, F. R.	NSG 1328	3196
22	PURDUE UNIVERSITY	Gregory, T. J.	ARC	Anderson, D. C.	NSG 2192	2073
22	TEXAS A&M UNIVERSITY	Damon, E. P.	GSFC	Simmons, D. B.	NAS 5-23827	3365
22	TEXAS A&M UNIVERSITY	Broune, I. D	JSC	Hartley, H. O.	NAS 9-13894	3371
22	TEXAS A&M UNIVERSITY	Nolin, F. D.	JSC	Guseman, L. F., Jr.	NAS 9-14556	3375
22	TEXAS A&M UNIVERSITY	Browne, I. D.	JSC	Guseman, L. F., Jr.	NAS 9-14689	3376
22	UNIV OF DENVER	Hargrave, C.	HQ-KT	Unavailable	NASW 2992	1720
22	UNIV ILLINOIS-URBANA	Slye, R. E.	ARC	Ray, R. M.	NGR 14-005-202	2030
22	UNIV MARYLAND-COL PK	Barsky, J.	GSFC	Agrawala, A. K	NAS 5-22878	2239
22	UNIV MARYLAND-COL PK	Barsky, J.	GSFC	Agrawala, A. K	NAS 5-24092	2242
22	UNIV MARYLAND-COL PK	Randolph, L. P.	HQ-RR	Reiger, C. J	NSG 7253	2300
22	UNIV TENNESSEE-KNOXV	Schaefer, D. H	GSFC	Bodenheimer, R. E	NSG 5002	3304
22	UNIV TEXAS-AUSTIN	Shipman, F. S.	LARC	Browne, J. C.	NSG 1446	3447
22	UNIV OF VIRGINIA	Will, R. W	LARC	Berman, W. J	NAS 1-14862	3585
22	UNIV OF VIRGINIA	Barker, L. E	LARC	Parrish, E. A., Jr.	NSG 1403	3604
31	ALCORN STATE UNIV	Schmid, P. E.	GSFC	Paul, M. P	NGR 25-012-001	2608
31	ARIZONA STATE UNIV	Camp, D.	MSFC	Logan, E., Jr	NAS 8-32357	1075
31	CALIF INST OF TECH	Pollack, J. B.	ARC	Yung, Y. L.	NSG 2229	1192
31	CALIF INST OF TECH	Nelsen, E. D	GSFC	Ingersoll, A. P	NAS 5-22965	1164
31	CALIF INST OF TECH	Mitz, M. A.	HQ-SL	Yung, Y. L.	NSG 7376	1206
31	CAL STATE U-FULLERTN	Ward, J. C., Jr.	LARC	Ryan, J. A	NAS 1-14621	1213
31	CATHOLIC UNIVERSITY	Payne, W. A.	GSFC	Hunt, J. B	NSG 5173	1766
31	CITY COLLEGE OF N Y	Hansen, J. E.	GSFC	Spar, J.	NGR 33-013-086	2786
31	CITY COLLEGE OF N Y	Turner, R. E	LARC	Chen, C. M.	NSG 1305	2788
31	CLARK COLLEGE	Black, D. C.	ARC	Walker, G. H.	NSG 2143	1894
31	COLLEGE OF WM & MARY	Russell, J. M., III	LARC	Park, J. H.	NSG 1203	3520
31	COLORADO STATE UNIV	Shimazaki, T	ARC	Reiter, E. R.	NSG 2253	1652
31	COLORADO STATE UNIV	Theon, J. S	GSFC	Reiter, E. R	NGR 06-002-098	1645
31	COLORADO STATE UNIV	Curran, R. J	GSFC	VonDerHaar, T. H	NGR 06-002-102	1646
31	COLORADO STATE UNIV	Adler, R. F	GSFC	Cotton, W. R	NSG 5011	1660
31	COLORADO STATE UNIV	Neil, E. A	GSFC	Marlatt, W. E	NSG 5073	1661
31	COLORADO STATE UNIV	Rados, R. M	GSFC	Sinclair, P. C	NSG 5105	1662
31	COLORADO STATE UNIV	Wilmarth, V.	JSC	Marlatt, W. E	NAS 9-14765	1641
31	COLORADO STATE UNIV	Cooper, J. E	LARC	VonDerHaar, T. H.	NAS 1-14538	1632
31	COLUMBIA UNIVERSITY	Gemmell, J	GSFC	Novick, R	NAS 5-22408	2797
31	COLUMBIA UNIVERSITY	Gemmell, J	GSFC	Novick, R.	NAS 5-24152	2803
31	CORNELL UNIVERSITY	Pirraglia, J. A	GSFC	Gierasch, P. J	NAS 5-23785	2835

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OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
31	CORNELL UNIVERSITY	Costen, R. C.	LARC	Paine, D. A	NSG 1365	2858
31	CORNELL UNIVERSITY	Fellows, R. F.	HQ-SL	Sagan, C. E	NGL 33-010-062	2841
31	CORNELL UNIVERSITY	Fellows, R. F	HQ-SL	Gierasch, P. J.	NGL 33-010-186	2843
31	CORNELL UNIVERSITY	Fellows, R. F.	HQ-SL	Elliot, J. L.	NSG 7243	2868
31	DARTMOUTH COLLEGE	Hansen, J. E.	GSFC	Decker, R. W.	NSG 5145	2684
31	DREXEL UNIVERSITY	Adler, R F	GSFC	Kreitzberg, C. W.	NSG 5162	3155
31	DREXEL UNIVERSITY	Russell, J. M., III	LARC	House, F. B	NAS 1-14393	3150
31	DREXEL UNIVERSITY	Hill, K.	MSFC	Kreitzberg, C. W.	NAS 8-31235	3152
31	DREXEL UNIVERSITY	Holland, A. C.	WFC	Brandy, A. R.	NSG 6007	3156
31	FAIRFIELD UNIVERSITY	Heath, D. F.	GSFC	McElaney, J H.	NGR 07-010-002	1734
31	FLORIDA STATE UNIV	McMaster, L. R.	LARC	Craig, R. A.	NAS 1-14930	1839
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NSG 1026	1778
31	GEORGE WASHINGTON U	Callis, L. B.	LARC	Liebowitz, H.	NSG 1216	1782
31	GEORGE WASHINGTON U	Costen, R. C	LARC	Liebowitz, H.	NSG 1251	1784
31	GEORGIA INST OF TECH	Levine, D. M	GSFC	Robertson, D W.	NAS 5-20956	1906
31	GEORGIA INST OF TECH	Schmidt, R. F.	GSFC	Leach, W. M , Jr	NAS 5-23886	1909
31	GEORGIA INST OF TECH	Levine, D M.	GSFC	Wilson, C. S.	NAS 5-24148	1910
31	GEORGIA INST OF TECH	King, J. L.	GSFC	Dees, J W.	NSG 5082	1933
31	GEORGIA INST OF TECH	Jafferis, W.	KSC	Woody, J. A.	NAS10-9210	1922
31	GEORGIA INST OF TECH	Lawrence, G. F	LARC	Zimmer, R. P	NAS 1-14351	1901
31	GEORGIA INST OF TECH	Fellows, R. F	HQ-SL	Edwards, H D.	NGL 11-002-004	1923
31	HARVARD UNIVERSITY	Spencer, C. W	GSFC	McElroy, M. B	NAS 5-23199	2326
31	HARVARD UNIVERSITY	Donley, J. L.	GSFC	Reeves, E. M	NAS 5-23494	2328
31	HARVARD UNIVERSITY	Spencer, N. W.	GSFC	McElroy, M. B.	NAS 5-24134	2329
31	HARVARD UNIVERSITY	Halem, M.	GSFC	Lindzen, R. S.	NSG 5160	2351
31	HARVARD UNIVERSITY	Williams, T. S., Jr.	LARC	McElroy, M. B.	NAS 1-10492	2323
31	HARVARD UNIVERSITY	Rosendahl, J. D.	HQ-SA	Parkinson, W. H.	NSG 7304	2358
31	HARVARD UNIVERSITY	Fellows, R. F	HQ-SL	Goody, R M.	NGL 22-007-228	2338
31	HARVARD UNIVERSITY	Fellows, R. F.	HQ-SL	Pipkin, F. M.	NSG 7095	2354
31	HARVARD UNIVERSITY	Reed, E. I.	HQ-SU	McElroy, M. B.	NSG 2031	2345
31	JOHNS HOPKINS UNIV	Gustafson, C.	GSFC	Doering, J. P.	NAS 5-11415	2209
31	KANSAS STATE UNIV	Salomonson, V. V	GSFC	Kanemasu, E. T.	NSG 5101	2120
31	KANSAS STATE UNIV	Barnett, T. L.	JSC	Kanemasu, E. T.	NAS 9-14899	2117
31	KANSAS STATE UNIV	Fellows, R. F.	HQ-SL	Williams, D	NGL 17-001-026	2119
31	MASS INST OF TECH	Reynolds, R T.	ARC	Prinn, R. G	NSG 2010	2448
31	MASS INST OF TECH	Popoff, I G.	ARC	Alyea, F.	NSG 2196	2456
31	MASS INST OF TECH	Ratliff, R B.	GSFC	Staelin, D. H.	NAS 5-21980	2374
31	MASS INST OF TECH	Halem, M	GSFC	Stone, P. H.	NGR 22-009-727	2421
31	MASS INST OF TECH	Wexler, R	GSFC	Austin, P. M.	NSG 5095	2471
31	MASS INST OF TECH	Hansen, J E.	GSFC	Stone, P. H	NSG 5113	2472
31	MASS INST OF TECH	Halem, M.	GSFC	Charney, J. G.	NSG 5166	2475
31	MASS INST OF TECH	Wexler, R.	GSFC	Austin, P. M	NSG 5204	2476
31	MASS INST OF TECH	Eichelman, W. F	JSC	Toksoz, M N.	NAS 9-12334	2389
31	MASS INST OF TECH	McMaster, L. R.	LARC	Cunn id, D. M.	NAS 1-14932	2364
31	MASS INST OF TECH	Vitale, J. A.	HQ-P	Gatos, H. C.	NSG 7331	2489
31	MASS INST OF TECH	Fellows, R. F.	HQ-SL	Lewis, J. S.	NGL 22-009-521	2402
31	MOREHOUSE COLLEGE	Demore, W.	JPL	Hall, J.	NSG 7269	1939
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E.	NSG 5034	2885
31	NEW YORK UNIVERSITY	Halem, M	GSFC	Hoffert, M. I.	NSG 5045	2886
31	NEW YORK UNIVERSITY	Halem, M.	GSFC	Isaacson, E	NSG 5130	2887
31	OLD DOMINION UNIV	Keating, G. M.	LARC	Goglia, G. L	NSG 1028	3540
31	OLD DOMINION UNIV	Reichle, H. G., Jr	LARC	Kindle, E C	NSG 1127	3546
31	OLD DOMINION UNIV	Russell, J. M., III	LARC	Kindle, E C.	NSG 1131	3547
31	OLD DOMINION UNIV	Allario, F.	LARC	Kindle, E. C.	NSG 1197	3552
31	OLD DOMINION UNIV	McCormick, M P.	LARC	Deepak, A.	NSG 1252	3558
31	OLD DOMINION UNIV	Reichle, H. G., Jr.	LARC	Tiwari, S N.	NSG 1282	3562
31	OLD DOMINION UNIV	McMaster, L R.	LARC	Chu, W P	NSG 1341	3569
31	OLD DOMINION UNIV	Reichle, H. G., Jr.	LARC	Kindle, E. C.	NSG 1394	3579

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
31	OLD DOMINION UNIV	Beck, S. M.	LARC	Kindle, E. C.	NSG 1395	3580
31	OLD DOMINION UNIV	Vitale, J. A.	HQ-P	Kindle, E. C.	NGL 47-003-067	3536
31	PAN AMERICAN UNIV	Pohly, J. G.	HQ-P	Glaser, F. M.	NSG 7298	3333
31	PENN STATE U-UNIV PK	Adler, R. F.	GSFC	Anthes, R. A.	NSG 5205	3208
31	PENN STATE U-UNIV PK	Fichtl, G. H.	MSFC	Blackadar, A. K.	NAS 8-32046	3184
31	PENN STATE U-UNIV PK	Duke, J. R.	WFC	Olivero, J	NAS 6-2726	3181
31	PENN STATE U-UNIV PK	Schmidlin, F. J.	WFC	Clark, J. H.	NAS 6-281*	3182
31	PENN STATE U-UNIV PK	Schmidlin, F. J.	WFC	Hale, L. C.	NAS 6-28_6	3183
31	PENN STATE U-UNIV PK	Seals, R. K., Jr.	HQ-SU	Hale, L. C.	NSG 7350	3214
31	POLY INST OF NY	Pirraglia, J. A.	GSFC	Gross, S. H.	NAS 5-24086	2891
31	POLY INST OF NY	Fellows, R. F.	HQ-SL	Gross, S. H.	NGR 33-006-068	2893
31	RENSSELAER POLY-NY	Fellows, R. F.	HQ-SL	Harteck, P.	NGL 33-018-007	2910
31	RICE UNIVERSITY	Johnson, R. D.	ARC	Ward, C. H.	NAS 2-9552	3338
31	RICE UNIVERSITY	Arndt, G. D.	JSC	Gordon, W. E.	NAS 9-15212	3344
31	RICE UNIVERSITY	Goldstein, B. E.	HQ-SL	Michel, F. C.	NSG 7032	3352
31	RICE UNIVERSITY	Fellows, R. F.	HQ-SL	Chamberlain, J. W.	NSG 7043	3353
31	ST U NY COL-PURCHASE	Halem, M.	GSFC	Tenenbaum, J.	NSG 5077	2965
31	SAN DIEGO STATE UNIV	Levine, J. S.	LARC	Angione, R. J.	NSG 1430	1229
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NCA 2-675711	1244
31	SAN JOSE STATE UNIV	Whitten, R. C.	ARC	Riegel, C. A.	NSG 2130	1252
31	STANFORD UNIVERSITY	Watson, V. R.	ARC	Spreiter, J. R	NCA 2-745704	1289
31	STANFORD UNIVERSITY	Reynolds, R. T.	ARC	Spreiter, J. R	NSG 2072	1343
31	STANFORD UNIVERSITY	Fellows, R. F.	HQ-SL	Eshleman, V. R.	NGL 05-020-014	1305
31	STATE UNIV NY-ALBANY	Holdeman, J. D	LERC	Mohnen, V. A.	NSG 3138	2927
31	STATE UNIV NY-ALBANY	Clifton, K. S.	MSFC	Schuerman, D. W.	NAS 8-32485	2924
31	STATE UNIV NY-ALBANY	Donn, B. D.	HQ-SL	Phillips, O. M.	NSG 7093	2928
31	STATE UNIV NY-ALBANY	Greenwood, L. R	HQ-SU	Kiang, C. S.	NSG 7222	2929
31	STATE UNIV NY-ALBANY	King, J., Jr.	HQ-SU	Weinberg, J. L	NSG 7230	2930
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Owen, T.	NGR 33-015-165	2947
31	STATE U NY-STONY BRK	Hansen, J. E.	GSFC	Hogan, J. S.	NSG 5015	2952
31	STATE U NY-STONY BRK	Stewart, R. W	GSFC	Hogan, J. S.	NSG 5102	2953
31	STATE U NY-STONY BRK	Brunk, W. E.	HQ-SL	Varanasi, P.	NGR 33-015-139	2944
31	TENNESSEE TECH U	Humphries, W. R	MSFC	Griggs, E. I.	NAS 8-31564	3274
31	TEXAS A&M UNIVERSITY	Schmugge, T. J.	GSFC	McFarland, M. J	NSG 5193	3392
31	TEXAS A&M UNIVERSITY	Fichtl, G. H	MSFC	Brundidge, K. C.	NAS 8-31234	3367
31	TEXAS A&M UNIVERSITY	Turner, R. E	MSFC	Scoggins, J. R.	NAS 8-31773	3368
31	TEXAS A&M UNIVERSITY	Fellows, R. F.	HQ-SL	Plass, G. N.	NGR 44-001-117	3383
31	UNIV ALA-HUNTSVILLE	Smith, R. E.	MSFC	Hung, R. J.	NAS 8-30247	1044
31	UNIV ALA-HUNTSVILLE	Smith, R. E.	MSFC	Hung, R. J.	NAS 8-31321	1050
31	UNIV OF ARIZONA	Hall, C. F.	ARC	Tomasko, M. G.	NAS 2-8818	1087
31	UNIV OF ARIZONA	Dankelman, L.	GSFC	Kassander, R. A.	NCA 5-19	1102
31	UNIV OF ARIZONA	Pearl, J	GSFC	Fink, U. W.	NCA 5-75	1104
31	UNIV OF ARIZONA	Dunkelman, L.	GSFC	Martineck, S	NCA 5-76	1105
31	UNIV OF ARIZONA	LeVine, D. M	GSFC	Krider, E. P	NSG 5023	1126
31	UNIV OF ARIZONA	Jafferis, W.	KSC	Krider, E. P.	NAS10-8518	1100
31	UNIV OF ARIZONA	McCormick, M. P.	LARC	Herman, B. M.	NAS 1-14332	1084
31	UNIV OF ARIZONA	McMaster, L. R.	LARC	Herman, B. M.	NAS 1-14928	1085
31	UNIV OF ARIZONA	Fellows, R. F	HQ-SL	Hoenig, S. A.	NGL 03-002-019	1108
31	UNIV OF ARIZONA	Fellows, R. F	HQ-SL	Smith, B.	NSG 7265	1142
31	UNIV ARKANSAS-FAYETV	Falls, L. W.	MSFC	Tubbs, J. D.	NAS 8-31550	1149
31	UNIV ARKANSAS-FAYETV	Huffaker, R. M.	MSFC	Skeith, R. W.	NAS 8-31771	1150
31	UNIV CALIF-BERKELEY	Fellows, R. F.	HQ-SL	Pimental, G. C.	NGL 05-003-286	1399
31	UNIV CALIF-BERKELEY	Smith, M. J.	HQ-SL	Lin, R. P.	NSG 7277	1441
31	UNIV CALIF-IRVINE	Timothy, A. F	HQ-ST	VanHoven, G	NSG 7375	1458
31	UNIV CALIF-IRVINE	Seals, R. K., Jr.	HQ-SU	Molina, M. J.	NSG 7208	1457
31	UNIV CALIF-L ANGELES	Hall, C. F.	ARC	Russell, C. T	NAS 2-9491	1463
31	UNIV CALIF-L ANGELES	Ehernberger, L. J.	DFRC	Wurtele, M. G	NSG 4001	1497
31	UNIV CALIF-L ANGELES	Halem, M.	GSFC	Arakawa, A	NGR 05-007-328	1484

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NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO
31	UNIV CALIF-L ANGELES	Reed, E. L.	GSFC	Thorne, R. M.	NSG 5190	1503
31	UNIV CALIF-L ANGELES	McCormick, M. P.	LARC	Kuriyan, J. G.	NSG 1270	1492
31	UNIV CALIF-L ANGELES	Fellows, R. F.	HQ-SL	Schubert, G.	NSG 7164	1507
31	UNIV CALIF-L ANGELES	Fellows, R. F.	HQ-SL	Aller, L. H.	NSG 7239	1509
31	UNIV CALIF-L ANGELES	Fellows, R. F.	HQ-SL	Coleman, P. J., Jr.	NSG 7295	1512
31	UNIV CALIF-SAN DIEGO	Corrigan, J. P.	GSFC	McIlwain, C. E.	NAS 5-23705	1523
31	UNIV CALIF-SAN DIEGO	Auer emanne, M. J.	HQ-SA	McIlwain, C. E.	NASW 2996	1528
31	UNIV OF CHICAGO	Wexler, R.	GSFC	Fujita, T. T.	NGR 14-001-008	2003
31	UNIV OF CHICAGO	Fellows, R. F.	HQ-SL	Kaplan, L. D.	NGR 14-001-194	2006
31	UNIV OF CHICAGO	Taylor, W. W.	HQ-ST	Simpson, J. A.	NSG 7288	2015
31	UNIV OF CHICAGO	Tilford, S. G.	HQ-SU	Kaplan, L. D.	NSG 7356	2017
31	UNIV COLORADO-BOLDR	Spencer, N. W.	GSFC	Stewart, A. I.	NAS 5-11405	1668
31	UNIV COLORADO-BOLDR	Westrom, C.	GSFC	Bruner, E. C., Jr.	NAS 5-22409	1671
31	UNIV COLORADO-BOLDR	Corrigan, J. P.	GSFC	Stewart, A. I.	NAS 5-23808	1675
31	UNIV COLORADO-BOLDR	Reber, C. A.	GSFC	London, J.	NSG 5153	1699
31	UNIV COLORADO-BOLDR	Fellows, R. F.	HQ-SL	Barth, C. A.	NGL 06-003-052	1680
31	UNIV COLORADO-BOLDR	Fellows, R. F.	HQ-SL	Barth, C. A.	NGL 06-003-064	1682
31	UNIV COLORADO-BOLDR	Fellows, R. F.	HQ-SL	Barth, C. A.	NGR 06-003-127	1685
31	UNIV COLORADO-BOLDR	King, J., Jr.	HQ-SU	London, J.	NSG 7224	1706
31	UNIV COLORADO-BOLDR	Seals, R. K., Jr.	HQ-SU	Thomas, R. J.	NSG 7231	1707
31	UNIV OF CONNECTICUT	Halem, M.	GSFC	Bock, P.	NSG 5075	1738
31	UNIV DC-VAN NESS	Hobbs, R. W.	GSFC	Kasten, R.	NCA 5-63	1826
31	UNIV OF DAYTON	Duke, J. R.	WFC	Luers, J. K.	NAS 6-2456	3089
31	UNIV OF DENVER	McMaster, L. R.	LARC	Mureray, D. G.	NAS 1-14929	1713
31	UNIV OF DENVER	McCormick, M. P.	LARC	Mureray, D. G.	NSG 1333	1724
31	UNIV OF DENVER	McCormick, M. P.	LARC	Goldman, A.	NSG 1405	1725
31	UNIV OF DENVER	McCormick, M. P.	LARC	Mureray, D. G.	NSG 1439	1727
31	UNIV OF DENVER	Reed, E. L.	HQ-SU	Fernald, F. G.	NSG 7271	1729
31	UNIV OF DENVER	Seals, R. K., Jr.	HQ-SU	Mureray, D. G.	NSG 7354	1730
31	UNIV OF FLORIDA	Jafferis, W.	KSC	Uman, M. A.	NGR 10-005-169	1861
31	UNIV OF FLORIDA	Reichle, H. G., Jr.	LARC	Chameides, W. L.	NSG 1363	1863
31	UNIV OF FLORIDA	Fellows, R. F.	HQ-SL	Green, A. S.	NGL 10-005-008	1856
31	UNIV OF HAWAII-MANOA	Theon, J. S.	GSFC	Ramage, C. S.	NSG 5159	1968
31	UNIV HOUSTON-HOUSTON	Schmerling, E. R.	HQ-ST	Sheldon, W. R.	NGR 44-005-133	3412
31	UNIV ILLINOIS-CHICGO	Pollack, J. B.	ARC	Krinsley, D.	NCA 2-330701	2018
31	UNIV ILLINOIS-URBANA	King, J.	HQ-SU	Unavailable	W-14133	2042
31	UNIV OF IOWA	Davis, M. A.	GSFC	Gurnett, D. A.	NAS 5-11431	2107
31	UNIV OF KANSAS	Sets, A.	ARC	Muirhead, V. U.	NAS 2-9414	2122
31	UNIV OF KANSAS	Wexler, R.	GSFC	Fagleman, J. R.	NSG 5086	2151
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1273	2166
31	UNIV OF KENTUCKY	Reichle, H. G., Jr.	LARC	Peters, L. K.	NSG 1424	2167
31	UNIV MARYLAND-COL PK	Boese, R. W.	ARC	Wilkerson, T. D.	NSG 2216	2276
31	UNIV MARYLAND-COL PK	Aikin, A. C.	GSFC	Wilkerson, T. D.	NAS 5-22537	2237
31	UNIV MARYLAND-COL PK	Findlay, J. A.	GSFC	Messenger, C. J.	NAS 5-22835	2238
31	UNIV MARYLAND-COL PK	Aikin, A. C.	GSFC	McIlrath, T. J.	NAS 5-24130	2243
31	UNIV MARYLAND-COL PK	Klinglesmith, D. A.	GSFC	Rosenfeld, A.	NCA 5-13	2247
31	UNIV MARYLAND-COL PK	Bauer, S. J.	GSFC	Smith, E. P.	NGL 21-002-033	2254
31	UNIV MARYLAND-COL PK	Hartle, R. E.	GSFC	Matthews, D. E.	NGR 21-002-096	2258
31	UNIV MARYLAND-COL PK	Theon, J. S.	GSFC	Thompson, O. E.	NSG 5084	2285
31	UNIV MARYLAND COL PK	Barnes, W. L.	GSFC	Wilkerson, T. D.	NSG 5174	2293
31	UNIV MARYLAND-COL PK	Theon, J. S.	GSFC	Thompson, O. E.	NSG 5209	2295
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Gammon, R. W.	NSG 1156	2273
31	UNIV MARYLAND-COL PK	Browell, E. V.	LARC	Wilkerson, T. D.	NSG 1336	2275
31	UNIV MD-EASTRN SHORE	Parsons, C. L.	WFC	Smith, J. C.	NSG 6016	2312
31	UNIV OF MIAMI	Nelsen, E. D.	GSFC	Gordon, H. R.	NAS 5-22963	1875
31	UNIV MICH-ANN ARBOR	Pelz, D.	GSFC	Carignan, G. R.	NAS 5-11376	2514
31	UNIV MICH-ANN ARBOR	Spencer, N. W.	GSFC	Carignan, G. R.	NAS 5-11380	2515
31	UNIV MICH-ANN ARBOR	Theon, J. S.	GSFC	Horvath, J. J.	NAS 5-20622	2516

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
31	UNIV MICH-ANN ARBOR	Cooley, J. E.	GSFC	Carignan, G. R.	NAS 5-20939	2517
31	UNIV MICH-ANN ARBOR	Krehbiel, J. F	GSFC	Donahue, T. M	NAS 5-22587	2518
31	UNIV MICH-ANN ARBOR	Gustafson, C.	GSFC	Hays, P. B.	NAS 5-23006	2521
31	UNIV MICH-ANN ARBOR	Spencer, N. W	GSFC	Carignan, G. R.	NAS 5-23230	2522
31	UNIV MICH-ANN ARBOR	Stolarski, R. S.	GSFC	Rusch, D. W	NSG 5171	2559
31	UNIV MICH-ANN ARBOR	Reed, E. I	GSFC	Stedman, D. H.	NSG 5189	2560
31	UNIV MICH-ANN ARBOR	Koons, F. D	JSC	Anderson, J. G.	NAS 9-14609	2530
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Drayson, S. R.	NAS 1-14394	2509
31	UNIV MICH-ANN ARBOR	Pellett, G. L.	LARC	Dingle, A. N.	NSG 1243	2546
31	UNIV MICH-ANN ARBOR	Russell, J. M., III	LARC	Drayson, S. R.	NSG 1373	2549
31	UNIV MICH-ANN ARBOR	Rossi, L. C.	WFC	Horvath, J. J.	NAS 6-2794	2525
31	UNIV MICH-ANN ARBOR	Gerb, D. S.	HQ-SB	Kuhn, W. R.	NSG 7308	2565
31	UNIV MICH-ANN ARBOR	Fellows, R. F	HQ-SL	Liu, W. C.	NGR 23-005-094	2537
31	UNIV MICH-ANN ARBOR	Donn, B. D.	HQ-SL	Bartman, F. L.	NGR 23-005-540	2543
31	UNIV MICH-ANN ARBOR	Fellows, R. F.	HQ-SL	Donahue, T. M.	NSG 7279	2564
31	UNIV MICH-ANN ARBOR	Cauffman, D. P.	HQ-ST	Nagy, A. F.	NGR 23-005-015	2536
31	UNIV MICH-ANN ARBOR	Tilford, S. G.	HQ-SU	Donahue, T. M.	NSG 7209	2563
31	U MINN-MNPLS-ST PAUL	Thorley, G. W	ARC	Nier, A. O	NAS 2-8812	2574
31	U MINN-MNPLS-ST PAUL	Spencer, N. W.	GSFC	Nier, A. O.	NAS 5-11438	2576
31	U MINN-MNPLS-ST PAUL	Corrigan, J. P	GSFC	Winckler, J. R.	NAS 5-23703	2580
31	U MINN-MNPLS-ST PAUL	Beswick, A. G	LARC	Mauersberger, K	NSG 1431	2593
31	U MINN-MNPLS-ST PAUL	Fellows, R. F	HQ-SL	Nier, A. O	NGL 24-005-009	2585
31	U MINN-MNPLS-ST PAUL	Seals, R. K., Jr	HQ-SU	Mauersberger, K	NSG 7221	2602
31	UNIV MO-COLUMBIA	Curran, R. J.	GSFC	Schuster, B. G	NAS 5-20818	2638
31	UNIV MO-COLUMBIA	Smith, R. F	MSFC	Plummer, P. L.	NAS 8-31150	2639
31	UNIV MO-COLUMBIA	Smith, R. F.	MSFC	Kassner, J. L.	NAS 8-31849	2641
31	UNIV NEBRASKA-LINCLN	Fellows, R. F	HQ-SL	Samson, J. A	NGR 28-004-021	2674
31	UNIV NEVADA-DRI	Smith, R. F	MSFC	Squires, P.	NAS 8-31470	2676
31	UNIV NEVADA-DRI	Schrick, B. J	MSFC	Squires, P.	NAS 8-31776	2677
31	UNIV OF NEVADA-RENO	Smith, R. F	MSFC	Squires, P	NAS 8-31780	2680
31	UNIV OF NEVADA-RENO	Schrick, B. J.	MSFC	Koemond, W. C.	NAS 8-32313	2681
31	UNIV NEW HAMP-DURHAM	Donley, J. L.	GSFC	Chupp, E. L	NAS 5-23761	2687
31	UNIV NEW HAMP-DURHAM	Ballance, C. W., Jr	WFC	Arnoldy, R. L	NSG 6013	2694
31	UNIV OKLAHOMA-NORMAN	Turner, R. F.	MSFC	Inman, R. L.	NAS 8-31333	3114
31	UNIV OKLAHOMA-NORMAN	Camp, D. W.	MSFC	McCarthy, J	NAS 8-31377	3115
31	UNIV OREGON-EUGENE	Tilford, S. G	HQ-SU	Nolt, I. G.	NSG 7360	3135
31	UNIV OF PITTSBURGH	Fellows, R. F	HQ-SL	Fite, W. L.	NGL 39-011-013	3225
31	UNIV OF PITTSBURGH	Fellows, R. F	HQ-SL	Zipf, E. C.	NGL 39-011-030	3226
31	UNIV OF PITTSBURGH	Fellows, R. F	HQ-SL	Biondi, M. A	NGR 39-011-137	3229
31	UNIV OF SANTA CLARA	Hochstein, L. I	ARC	Tomlinson, G. A	NCA 2-685614	1596
31	UNIV SO CAROLINA-COL	Fellows, R. F	HQ-SL	Durig, J. R	NGL 41-002-003	3255
31	UNIV OF SOUTHERN CAL	Brunk, W. E.	HQ-SL	Maxworthy, T.	NGR 05-018-178	1624
31	UNIV OF SOUTHERN CAL	Fellows, R. F	HQ-SL	Judge, D. L	NGR 05-018-180	1625
31	UNIV TENNESSEE-KNOXV	Kunde, V. G	GSFC	Fox, K.	NAS 5-20672	3277
31	UNIV TENNESSEE-KNOXV	Hill, K.	MSFC	Frost, W.	NAS 8-31718	3285
31	UNIV TENNESSEE-KNOXV	Vaughan, O. H.	MSFC	Connell, J. R.	NAS 8-32031	3287
31	UNIV TENNESSEE-KNOXV	Fichtl, G. H.	MSFC	Frost, W	NAS 8-32118	3289
31	UNIV TENNESSEE-KNOXV	Camp, D. W	MSFC	Kohl, R. H.	NAS 8-32635	3292
31	UNIV TENNESSEE-KNOXV	Fellows, R. F	HQ-SL	Gallar, N. M	NGL 43-001-006	3294
31	U TENNESSEE-MEMPHIS	Allen, W. K.	GSFC	Rochelle, R. W.	NAS 5-22495	3306
31	UNIV TEXAS-DALLAS	Hall, C. F	ARC	Hoffman, J. H.	NAS 2-8802	3463
31	UNIV TEXAS-DALLAS	Hall, C. F	ARC	Hoffman, J. H	NAS 2-9485	3464
31	UNIV TEXAS-DALLAS	Gustafson, C.	GSFC	Hoffman, J. H	NAS 5-11406	3465
31	UNIV TEXAS-DALLAS	Gustafson, C	GSFC	Hanson, W. B	NAS 5-11407	3466
31	UNIV TEXAS-DALLAS	Brace, L. H	GSFC	Heikkila, W. J	NSG 5085	3475
31	UNIV TEXAS-DALLAS	Brace, L. H.	GSFC	Anderson, D. C.	NSG 5087	3476
31	UNIV TEXAS-DALLAS	Unavailable	HQ-SA	Hanson, W. B.	NASR 177	3469
31	UNIV TEXAS-DALLAS	Fellows, R. F	HQ-SL	Johnson, F. S.	NGL 44-004-026	3470

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT CONTRACT NUMBER	ACC NO
31	UNIV TEXAS-DALLAS	Goldstein, B H	HQ-SL	Hodges, R R, Jr	NSG 7034	3478
31	UNIV TEXAS-DALLAS	Taylor, W W	HQ-ST	Hanson, W B	NGR 44-004-120	3473
31	UNIV TEXAS-S ANTONIO	Chappell, C R	MSFC	Burch, J L	NAS 8-32584	3487
31	UNIV OF UTAH	Duke, J R.	WFC	Kuo, S K	NAS 6-2498	3498
31	UNIV OF UTAH	Duke, J R	WFC	Stewart, A I	NAS 6-2627	3499
31	UNIV OF WASHINGTON	Young, R H	ARC	Holton, J R	NSG 2228	3676
31	UNIV OF WASHINGTON	Eberstein, I	GSFC	Leovy, C B.	NSG 5039	3678
31	UNIV OF WASHINGTON	Harris, J W	JSC	Brownlee, D E	NSG 9052	3686
31	UNIV OF WASHINGTON	Williams, L S, Jr	LARC	Leovy, C B	NAS 1-9694	3696
31	UNIV OF WASHINGTON	Russell, J M., III	LARC	Leovy, C B	NAS 1-14341	3697
31	UNIV OF WASHINGTON	Fellows, R E.	HQ-SL	Leovy, C B	NSG 7085	3680
31	UNIV WISC-MADISON	Hall, C F	ARC	Suomi, V E	NAS 2-8813	3695
31	UNIV WISC-MADISON	Hall, C F	ARC	Suomi, V E	NAS 2-9480	3696
31	UNIV WISC-MADISON	Theon, J S.	GSFC	Suomi, V E	NAS 5-21798	3698
31	UNIV WISC-MADISON	Montgomery, V	GSFC	Suomi, V E	NAS 5-21965	3699
31	UNIV WISC-MADISON	Gemmell, J	GSFC	Kraushaar, W L	NAS 5-22410	3701
31	UNIV WISC-MADISON	Greaves, J R	GSFC	Suomi, V E	NAS 5-23462	3703
31	UNIV WISC-MADISON	Hasler, A F	GSFC	Suomi, V E	NAS 5-23706	3705
31	UNIV WISC-MADISON	Theon, J S	GSFC	Suomi, V E	NAS 5-24136	3707
31	UNIV WISC-MADISON	Theon, J S	GSFC	Weinman, J A	NAS 5-24230	3708
31	UNIV WISC-MADISON	Halem, M	GSFC	Suomi, V E	NGR 50-002-215	3719
31	UNIV WISC-MADISON	Theon, J S	GSFC	Suomi, V E	NSG 5126	3724
31	UNIV WISC-MADISON	Halem, M	GSFC	Houghton, D D	NSG 5152	3725
31	UNIV WISC-MADISON	Northam, G B	LARC	Weinman, J A	NAS 1-14136	3694
31	UNIV WISC-MADISON	Fellows, R E	HQ-SL	Suomi, V E	NGR 50-002-189	3717
31	UNIV OF WYOMING	Crumbly, K H	LARC	Pepin, T J	NAS 1-13213	3733
31	UNIV OF WYOMING	Hedgepeth, K D	LARC	Pepin, T J	NAS 1-13797	3734
31	UNIV OF WYOMING	McCormick, M P	LARC	Pepin, T J	NAS 1-14373	3735
31	UNIV OF WYOMING	McMaster, L R	LARC	Pepin, T J	NAS 1-14931	3736
31	UNIV OF WYOMING	Schrick, B J	MSFC	Vah, G	NAS 8-32067	3737
31	UNIV OF WYOMING	King, J., Jr	HQ-SL	Hofmann, D J	NSG 7207	3739
31	UNIV OF WYOMING	Simon, N K	HQ-SL	Hofmann, D J	NSG 7349	3740
31	UTAH STATE UNIV	Lowenstein, M	ARC	Jeppesen, H	NAS 2-9557	3506
31	UTAH STATE UNIV	Chappell, C R	MSFC	Ratti, W J	NAS 8-32636	3507
31	UTAH STATE UNIV	Cauffman, D P	HQ-ST	Banks, P M	NSG 7289	3512
31	UTAH STATE UNIV	Greenwood, I R	HQ-SL	Baker, K D	NSG 7210	3511
31	VIRGINIA POLY INST	Carr, R H	WFC	Heleman, H W	NGL 47-004-067	3622
31	WASHINGTON ST UNIV	Seals, R K, Jr	HQ-SL	Rasmussen, R A	NSG 7214	3689
31	YALE UNIVERSITY	Fellows, R E	HQ-SL	Cross, R J, Jr	NGL 07-004-043	1741
31	YORK UNIVERSITY	Cooper, D M	ARC	Nicholls, R W	NSG 7223	3745
31	YORK UNIVERSITY	Baker, C H	LERC	Schiff, H I	NGR 52-134-005	3744
32	ARIZONA STATE UNIV	Pollack, J B	ARC	Krinsley, D	NCA 2-35703	1077
32	ARIZONA STATE UNIV	Young, R S	HQ-SB	Cronin, J R	NSG 7255	1083
32	ARIZONA STATE UNIV	French, B M	HQ-SL	Moore, C B	NGL 03-001-001	1078
32	ARIZONA STATE UNIV	French, B M	HQ-SL	Larimer, J W	NSG 7040	1081
32	ARIZONA STATE UNIV	Williams, R J	HQ-SL	Holloway, J R	NSG 7217	1082
32	BOSTON UNIVERSITY	Young, R S	HQ-SB	Margulis, I	NGR 22-004-025	2317
32	BRIGHAM YOUNG UNIV	Phinney, W C	JSC	Laole, G H	NAS 9-14499	3491
32	BROWN UNIVERSITY	Harris, J W	JSC	Rutherford, M J	NGR 40-002 123	3245
32	BROWN UNIVERSITY	Dwornik, S E	HQ-SL	Mutch, T A	NGR 40-002-088	3242
32	BROWN UNIVERSITY	Goldstein, B H	HQ-SL	Head, J W	NGR 40-002-116	3244
32	CALIF INST OF TECH	Bryson, R P	HQ-SL	Anderson, D L	NGL 05-002-069	1173
32	CALIF INST OF TECH	Goldstein, B H	HQ-SL	Ahrens, T J	NGL 05-002-105	1174
32	CALIF INST OF TECH	Dwornik, S E	HQ-SL	Murray, B C	NGR 05-002-117	1182
32	CALIF INST OF TECH	Dwornik, S E	HQ-SL	Shoemaker, E M	NGR 05-002-303	1188
32	CALIF INST OF TECH	Bryson, R P	HQ-SL	Wasserburg, G J	NSG 7084	1196
32	CALIF INST OF TECH	Fellows, R E	HQ-SL	Neugebauer, G	NSG 7094	1197
32	CALIF INST OF TECH	Goldstein, B H	HQ-SL	Ahrens, T J	NSG 7129	1199

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Murray, B. C.	NSG 7155	1200
32	CALIF INST OF TECH	Dwornik, S. E.	HQ-SL	Anderson, D. L.	NSG 7160	1201
32	CALIF INST OF TECH	Goldstein, B. E.	HQ-SL	Burnett, D. S.	NSG 7202	1203
32	CALIF INST OF TECH	Goldstein, B. E.	HQ-SL	Melosh, H. J.	NSG 7316	1205
32	CAL ST COL-SONOMA	Bunch, T. E.	ARC	Vennum, W.	NCA 2-720701	1210
32	CAL STATE U-FULLERTN	French, B. M.	HQ-SL	Woolum, D. S.	NSG 7314	1215
32	CAL STATE U-HAYWARD	Pollock, G. E.	ARC	Warnke, D. A.	NCA 2-290704	1216
32	CHICAGO STATE UNIV	Bunch, T. E.	ARC	Methot, R. L.	NSG 2188	1973
32	CITY COLLEGE OF N Y	Rossi, L. C.	WFC	Pierson, W. J.	NAS 6-2439	2782
32	COLORADO STATE UNIV	Carpenter, L. H.	GSFC	Thompson, E. G.	NGR 06-002-191	1650
32	COLUMBIA UNIVERSITY	Allenby, R. J.	GSFC	Bilham, R. G.	NSG 5072	2818
32	COLUMBIA UNIVERSITY	Ungar, S. G.	GSFC	High, C. J.	NSG 5080	2820
32	COLUMBIA UNIVERSITY	Stanley, H. R	WFC	Talwani, M.	NAS 6-2519	2805
32	COLUMBIA UNIVERSITY	Goldstein, B. E.	HQ-SL	Langseth, M. G.	NSG 7194	2828
32	COLUMBIA UNIVERSITY	French, B. M	HQ-SL	ONions, R. K.	NSG 7200	2829
32	CORNELL UNIVERSITY	Smith, D. E.	GSFC	Turcotte, D. L.	NSG 5060	2864
32	CORNELL UNIVERSITY	Goldstein, B. E.	HQ-SL	Turcotte, D. L.	NGR 33-010-108	2846
32	CORNELL UNIVERSITY	Williams, R. J.	HQ-SL	Kuckes, A. F.	NGR 33-010-178	2852
32	CORNELL UNIVERSITY	Dwornik, S. E.	HQ-SL	Sagan, C. E.	NGR 33-010-220	2656
32	CORNELL UNIVERSITY	Dwornik, S. E.	HQ-SL	Veverka, J.	NSG 7156	2866
32	CORNELL UNIVERSITY	Kochendorfer, F D.	HQ-SL	Harwit, M O.	NSG 7268	2869
32	CORNELL UNIVERSITY	Goldstein, B. E.	HQ-SL	Gold, T.	NSG 7348	2871
32	FLORIDA STATE UNIV	Schnetzler, C. C.	GSFC	Buie, B. F	NAS 5-22578	1840
32	FLORIDA STATE UNIV	Williams, T. S., Jr.	LARC	Hess, S. K.	NAS 1-9693	1838
32	GEORGIA INST OF TECH	Downs, S. W., Jr.	MSFC	Faust, C. F.	NAS 8-31990	1918
32	GEORGIA SOUTHWTN COL	Paludan, C. T.	MSFC	Arden, D. D.	NAS 8-30884	1935
32	HARVARD UNIVERSITY	Young, R. S.	HQ-SB	Barghoorn, E. S.	NGL 22-007-069	2336
32	HARVARD UNIVERSITY	Dwornik, S. E	HQ-SL	Cameron, A. G	NGR 22-007-269	2342
32	HARVARD UNIVERSITY	Williams, R. J	HQ-SL	Cameron, A. G.	NSG 7191	2357
32	INDIANA U-BLOOMINGTN	Young, R S.	HQ-SB	Hayes, J. M.	NGR 15-003-118	2052
32	JOHNS HOPKINS UNIV	Marsh, J. G	GSFC	Marsh, B. D.	NSG 5090	2223
32	LEHIGH UNIVERSITY	French, B. M	HQ-SL	Goldstein, J. I.	NGR 39-007-043	3168
32	MASS INST OF TECH	Harris, J. W.	JSC	Brecher, A.	NSG 9057	2492
32	MASS INST OF TECH	Kosofsky, L. J.	HQ-SL	Press, F.	NGL 22-009-187	2399
32	MASS INST OF TECH	Williams, R. J.	HQ-SL	McCord, T. B	NGR 22-009-790	2427
32	MASS INST OF TECH	Williams, R. J.	HQ-SL	Counselman, C C , III	NSG 7010	2477
32	MASS INST OF TECH	Williams, R. J	HQ-SL	McCord, T. B.	NSG 7048	2478
32	MASS INST OF TECH	Williams, R. J	HQ-SL	Suomi, V. E.	NSG 7077	2479
32	MASS INST OF TECH	Goldstein, B. E.	HQ-SL	Toksoz, M. N.	NSG 7081	2480
32	MASS INST OF TECH	Goldstein, B. E	HQ-SL	Counselman, C. C., III	NSG 7118	2482
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	McCord, T B.	NSG 7273	485
32	MASS INST OF TECH	Dwornik, S. E.	HQ-SL	Solomon, S. C.	NSG 7297	486
32	MASS INST OF TECH	Goldstein, B. E.	HQ-SL	Solomon, S C	NSG 7329	488
32	MASS INST OF TECH	Quaide, W L	HQ-SL	Burns, R G	NSG 7338	2490
32	NEW MEX ST U-LAS CR	Walsh, E. J.	WFC	Guard, K.	NAS 6-2795	2747
32	NE LOUISIANA UNIV	Dwornik, S. E	HQ-SL	Dehon, R. A	NSG 7357	2185
32	OHIO STATE UNIV	Marsh, J. G	GSFC	Rapp, R. H.	NGR 36-008-161	3058
32	OHIO STATE UNIV	Stanley, H R	WFC	Rapp, R. H	NAS 6-2484	3053
32	OHIO STATE UNIV	Murphy, J. P.	HQ-ES	Mueller, I. I.	NGR 36-008-204	3059
32	OREGON STATE UNIV	Bryson, R. P.	HQ-SL	Schmitt, R A	NGL 38-002-020	3125
32	OREGON STATE UNIV	Dwornik, S. E	HQ-SL	Komar, P. D.	NSG 7178	3129
32	PAN AMERICAN UNIV	Huntress, W. T	JPL	Glaser, F M.	NGR 44-087-002	3332
32	PENN STATE U-UNIV PK	Podwysocki, M H.	GSFC	Gold, D P.	NAS 5-22822	3176
32	PENN STATE U-UNIV PK	Oseroff, H.	GSFC	Carlson, T. N.	NAS 5-24264	3178
32	PENN STATE U-UNIV PK	Allenby, R. J.	GSFC	Alexander, S. S.	NSG 5185	3207
32	PENN STATE U-UNIV PK	Bryson, R. P.	HQ-SL	Gold, D. P.	NGL 39-009-010	3187
32	PENN STATE U-UNIV PK	Goldstein, B. E.	HQ-SL	Muan, A	NSG 7120	3212
32	PENN STATE U-UNIV PK	Goldstein, B. E.	HQ-SL	Alexander, S S.	NSG 7193	3213

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NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
32	PRINCETON UNIVERSITY	Stecker, T. P.	GSFC	Jenkins, E. B.	NAS 5-22360	2699
32	PRINCETON UNIVERSITY	Goldstein, B. E.	HQ-SL	Phinney, R. A	NSG 7080	2724
32	PRINCETON UNIVERSITY	Dwornik, S. E.	HQ-SL	Smoluchowski, R.	NSG 7283	2727
32	PURDUE UNIVERSITY	Langel, R. A	GSFC	Hinze, W. J.	NAS 5-22816	2057
32	PURDUE UNIVERSITY	Lynch, T. J.	GSFC	Wintz, P. A.	NSG 5010	2080
32	PURDUE UNIVERSITY	French, B. M.	HQ-SL	Lipschutz, M. E.	NGL 15-005-140	2063
32	QUEENS COLLEGE	Goldstein, B. E	HQ-SL	Takahashi, T.	NSG 7321	2902
32	RICE UNIVERSITY	Meese, K. J.	GSFC	Anderson, H. R., Jr.	NAS 5-9317	3339
32	RICE UNIVERSITY	Harris, J. W.	JSC	Heymann, D.	NGL 44-006-127	3348
32	RICE UNIVERSITY	Goldstein, B. E.	HQ-SL	Clayton, D. D.	NSG 7361	3355
32	RICE UNIVERSITY	Goldstein, B. E.	HQ-SL	Debremaecker, J. C.	NSG 7362	3356
32	RICE UNIVERSITY	Goldstein, B. E.	HQ-ST	Freeman, J. W., Jr	NSG 7157	3354
32	RUTGERS U-N BRUNSWK	French, B. M	HQ-SL	Hewins, R. H.	NSG 7327	2732
32	ST MARY'S UNIVERSITY	Horz, F.	JSC	Hanss, R. E	NSG 9039	3357
32	SAN DIEGO STATE UNIV	Goldstein, B. E.	HQ-SL	Rehfuss, D. E	NSG 7026	1230
32	SAN JOSE STATE UNIV	Blanchard, M. B.	ARC	Anderson, D. W	NSG 2236	1263
32	SO DAKOTA STATE UNIV	Gordon, E., Jr.	GSFC	Schmer, F	NAS 5-20982	3260
32	SO DAKOTA STATE UNIV	Downs, J.	JSC	Westin, E. C.	NAS 9-15345	3262
32	STANFORD UNIVERSITY	Iafer, F. J	ARC	Fairbank, W. M	NCA 2-745708	1292
32	STANFORD UNIVERSITY	Broderick, J. C	GSFC	Lyon, R. J	NAS 5-24232	1279
32	STANFORD UNIVERSITY	Dwornik, S. E	HQ-SL	Howard, H. T.	NGR 05-020-649	1327
32	STANFORD UNIVERSITY	Goldstein, B. E	HQ-SL	Tyler, G. L	NSG 7029	1369
32	STANFORD UNIVERSITY	Williams, R. J	HQ-SL	Nur, A. M	NSG 7117	1372
32	STATE UNIV NY-ALBANY	Frey, H. V	GSFC	Burke, K.	NAS 5-24094	2922
32	STATE UNIV NY-BUFFAL	Dwornik, S. E	HQ-SL	King, J. S	NGR 33-015-108	2937
32	STATE U NY-STONY BRK	Harris, J. W	JSC	Pao, M. T	NSG 9013	2962
32	STATE U NY-STONY BRK	Stuartalexander, D. E	HQ-SL	Hartung, J. B	NSG 7036	2956
32	STATE U NY-STONY BRK	Williams, R. J	HQ-SL	Papike, J. J	NSG 7150	2957
32	STATE U NY-STONY BRK	Williams, R. J	HQ-SL	Schaeffer, O. A.	NSG 7225	2958
32	TEXAS A&M UNIVERSITY	Chang, A. T	GSFC	Blanchard, B. J	NSG 5134	3390
32	TEXAS A&M UNIVERSITY	Chang, A. T	GSFC	Blanchard, B. J.	NSG 5156	3391
32	TEXAS A&M UNIVERSITY	Buras, N. E	JSC	Schell, J. A	NAS 9-14875	3379
32	TEXAS A&M UNIVERSITY	Williams, R. J	HQ-SL	Rowe, M. W.	NGR 44-001-152	3384
32	TEXAS A&M UNIVERSITY	Goldstein, B. E	HQ-SL	Gangi, A. F	NSG 7189	3394
32	TEXAS A&M UNIVERSITY	Dwornik, S. E	HQ-SL	Young, A. T	NSG 7370	3395
32	UNIV ALA-HUNTSVILLE	Bensko, J	MSFC	Doyle, T	NAS 8-31345	1051
32	UNIV ALA-TUSCALOOSA	Bensko, J.	MSFC	Stow, S. H	NAS 8-29937	1060
32	UNIV OF ARIZONA	Young, R. S	HQ-SB	Nagy, B	NGR 03-002-171	1115
32	UNIV OF ARIZONA	Williams, R. J	HQ-SL	Strom, R. G	NGL 03-002-191	1112
32	UNIV OF ARIZONA	Dwornik, S. E	HQ-SL	Sonett, C. P	NGR 03-002-370	1119
32	UNIV OF ARIZONA	French, B. M	HQ-SL	Wilkening, L. L	NSG 7011	1128
32	UNIV OF ARIZONA	Goldstein, B. E	HQ-SL	Sonett, C. P	NSG 7020	1129
32	UNIV OF ARIZONA	Dwornik, S. E	HQ-SL	Strom, R. G	NSG 7146	1136
32	UNIV OF ARIZONA	Williams, R. J	HQ-SL	Greenberg, R	NSG 7201	1138
32	UNIV OF ARIZONA	French, B. M	HQ-SL	Gehrels, A. M	NSG 7246	1140
32	UNIV OF ARIZONA	French, B. M	HQ-SL	Zellner, B. H	NSG 7249	1141
32	U ARKANSAS-MONTICELLO	Goldstein, B. E	HQ-SL	Dehon, R. A	NSG 7216	1155
32	U ARKANSAS-MONTICELLO	Dwornik, S. E	HQ-SL	Dehon, R. A	NSG 7244	1156
32	UNIV CALIF-BERKELEY	Stonesifer, G. R	GSFC	Colwell, R	NAS 5-20969	1376
32	UNIV CALIF-BERKELEY	Davis, M. A	GSFC	Anderson, K. A	NAS 5-22307	1378
32	UNIV CALIF-BERKELEY	Young, R. S	HQ-SB	Calvin, M	NGL 05-003-003	1396
32	UNIV CALIF-DAVIS	Millard, J. P	ARC	Hatfield, J. L	NCA 2-180607	1447
32	UNIV CALIF-LOS ANGELES	Page, M. A.	MSFC	Coleman, P. J., Jr	NAS 8-32571	1469
32	UNIV CALIF-LOS ANGELES	Murphy, J. P	HQ-ES	Kaula, W. M	NSG 7002	1504
32	UNIV CALIF-LOS ANGELES	Young, R. S	HQ-SB	Kaplan, I. R	NGR 05-007-221	1480
32	UNIV CALIF-LOS ANGELES	Young, R. S	HQ-SB	Schopf, J. W	NGR 05-007-407	1488
32	UNIV CALIF-LOS ANGELES	Goldstein, B. E	HQ-SL	Kaula, W. M	NGL 05-007-002	1474
32	UNIV CALIF-LOS ANGELES	Bryson, R. P	HQ-SL	Kennedy, G. C	NGL 05-007-006	1476

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
32	UNIV CALIF-L ANGELES	Dwornik, S. E.	HQ-SL	Schubert, G.	NGR 05-007-317	1483
32	UNIV CALIF-L ANGELES	French, B. M.	HQ-SL	Wasson, J. T.	NGR 05-007-329	1485
32	UNIV CALIF-L ANGELES	Goldstein, B. E.	HQ-SL	Coleman, P. J., Jr.	NGR 05-007-351	1487
32	UNIV CALIF-L ANGELES	Williams, R. J.	HQ-SL	Kieffer, S. W.	NSG 7052	1505
32	UNIV CALIF-L ANGELES	Dwornik, S. E.	HQ-SL	Kieffer, H. H.	NSG 7282	1511
32	UNIV CALIF-L ANGELES	Goldstein, B. E.	HQ SL	Schubert, G.	NSG 7315	1513
32	UNIV CALIF-L ANGELES	French, B. M.	HQ-SL	Boynton, W. V.	NSG 7335	1514
32	UNIV CALIF-SAN DIEGO	Mead, G. D.	GSFC	Jordan, T. H.	NSG 5089	1558
32	UNIV CALIF-SAN DIEGO	Williams, R. J.	HQ-SL	Arrhenius, G.	NGL 05-009-002	1532
32	UNIV CALIF-SAN DIEGO	French, B. M.	HQ-SL	Arnold, J. R.	NGL 05-009-004	1533
32	UNIV CALIF-SAN DIEGO	Smith, M. J.	HQ-SL	Arnold, J. R.	NGR 05-005-005	1538
32	UNIV CALIF-SAN DIEGO	Goldstein, B. E.	HQ-SL	Arnold, J. R.	NSG 7027	1559
32	UNIV CALIF-SAN DIEGO	Dwornik, S. E.	HQ-SL	Alfven, H.	NSG 7102	1561
32	UNIV CALIF-SAN DIEGO	French, B. M.	HQ-SL	MacDougall, J. D.	NSG 7121	1562
32	UNIV CALIF-S BARBARA	Salomonson, V. V.	GSFC	Ozier, J. D.	NSG 5155	1582
32	UNIV CALIF-S BARBARA	Chang, A. T.	GSFC	Estes, J. E.	NSG 5170	1583
32	UNIV CALIF-S BARBARA	Harris, J. W	JSC	Tilton, G. R.	NGR 05-010-081	1579
32	UNIV CALIF-S BARBARA	Dwornik, S. E.	HQ-SL	Peale, S. J.	NGR 05-010-062	1578
32	UNIV OF CHICAGO	French, B. M.	HQ-SL	Anders, E.	NGL 14-001-010	1998
32	UNIV OF CHICAGO	Dwornik, S. E.	HQ-SL	Turkevich, A. L.	NGR 14-001-135	2004
32	UNIV OF CHICAGO	French, B. M.	HQ-SL	Grossman, L.	NGR 14-001-249	2010
32	UNIV OF CHICAGO	Goldstein, B. E.	HQ-SL	Schramm, D. N.	NSG 7212	2014
32	UNIV COLORADO-BOLDR	Broderick, J. C.	GSFC	Ives, J. D.	NAS 5-20914	1669
32	UNIV COLORADO-BOLDR	Harris, J. W.	JSC	Spetzler, H. A.	NSG 9036	1712
32	UNIV COLORADO-BOLDR	Dwornik, S. E.	HQ-SL	Peterson, J. E.	NGR 06-003-199	1689
32	UNIV COLORADO-BOLDR	Goldstein, B. E.	HQ-SL	Smith, M. L.	NSG 7319	1710
32	UNIV OF CONNECTICUT	Salomonson, V. V.	GSFC	Bock, P.	NSG 5179	1739
32	UNIV OF GEORGIA	Dwornik, S. E.	HQ-SL	Howard, J. H.	NGR 11-003-037	1955
32	UNIV OF HAWAII-MANOA	Strickland, A. T.	HQ-SL	Jefferies, J. T.	NGR 12-001-127	1965
32	UNIV OF HAWAII-MANOA	Goldstein, B. E.	HQ-SL	McCord, T. B.	NSG 7312	1971
32	UNIV HOUSTON-HOUSTON	Young, R. S.	HQ-SB	Oro, J.	NGR 44-005-002	3410
32	UNIV HOUSTON-HOUSTON	Williams, R. J.	HQ-SL	Butler, J. C.	NSG 7198	3418
32	UNIV HOUSTON-HOUSTON	Dwornik, S. E.	HQ-SL	King, E. A.	NSG 7228	3419
32	UNIV OF KANSAS	Broderick, J. C.	GSFC	Haralick, R. M.	NAS 5-20943	2123
32	UNIV OF KANSAS	Hatcher, N. M.	JSC	Ulaby, F. T.	NAS 9-15003	2126
32	UNIV OF KANSAS	Rayroe, R. G.	MSFC	Lien, Y. E.	NSG 8046	2153
32	UNIV OF KANSAS	Dwornik, S. E.	HQ-SL	Warnke, D. E.	NGR 17-002-106	2131
32	UNIV OF KANSAS	Goldstein, B. E.	HQ-SL	Vanschmus, W. R.	NSG 7351	2152
32	UNIV MARYLAND-COL PK	Stief, L. J.	GSFC	Khanna, R. H.	NGR 21-002-368	2266
32	UNIV MARYLAND-COL PK	Rango, A.	GSFC	McCuen, R. H.	NGR 21-002-399	2268
32	UNIV MARYLAND-COL PK	Salomonson, V. V.	GSFC	Ragan, R. M.	NSG 5017	2278
32	UNIV MARYLAND-COL PK	Cressy, P. J.	GSFC	Sommer, S. E.	NSG 5047	2281
32	UNIV MARYLAND-COL PK	Trombka, J. I.	GSFC	Adler, I.	NSG 5094	2286
32	UNIV MARYLAND-COL PK	Nava, D. F.	GSFC	Weidner, J. R.	NSG 5121	2288
32	UNIV MARYLAND-COL PK	Schmugge, T. J.	GSFC	Witczak, M. W.	NSG 5137	2291
32	UNIV MARYLAND-COL PK	Goldstein, B. E.	HQ-SL	Adler, I.	NSG 7046	2297
32	UNIV MARYLAND-COL PK	Williams, R. J.	HQ-SL	Ponnamperuma, C. A.	NSG 7260	2301
32	UNIV MARYLAND-COL PK	Goldstein, B. E.	HQ-SL	Pai, S. I.	NSG 7365	2306
32	UNIV OF MASS-AMHERST	Dwornik, S. E.	HQ-SL	McGill, G. E.	NGR 22-010-076	2500
32	UNIV OF MIAMI	French, B. M.	HQ-SL	Fisher, D. E.	NSG 7245	1885
32	UNIV OF MIAMI	French, B. M.	HQ-SL	Fisher, D. E.	NSG 7309	1886
32	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Banerjee, S. K.	NGR 24-005-248	2591
32	U MINN-MNPLS-ST PAUL	Harris, J. W.	JSC	Weiblen, P. W.	NSG 9050	2606
32	UNIV MISS-UNIVERSITY	Paludan, C. T.	MSFC	Walsh, D. E.	NAS 8-32218	2632
32	UNIV OF NEW MEXICO	Goldstein, B. E.	HQ-SL	Elston, W. E.	NGL 32-004-011	2769
32	UNIV OF NEW MEXICO	French, B. M.	HQ-SL	Keil, K.	NGL 32-004-064	2771
32	UNIV OF NEW MEXICO	Dwornik, S. E.	HQ-SL	Elston, W. E.	NGR 32-004-062	2772
32	UNIV OREGON-EUGENE	Goldstein, B. E.	HQ-SL	Weill, D. F.	NGR 38-003-020	3132

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
32	UNIV OF PENNSYLVANIA	Kosofsky, L. J.	HQ-SL	Friel, J. J.	NSG 7119	3220
32	UNIV OF PITTSBURGH	Goldstein, B. E.	HQ-SL	Cassidy, W. A.	NGL 39-011-085	3228
32	UNIV OF PITTSBURGH	Williams, R. J.	HQ-SL	Hapke, B. W.	NSG 7203	3239
32	UNIV OF SANTA CLARA	Reynolds, R. T.	ARC	Barker, W. A.	NCA 2-685701	1597
32	UNIV OF SANTA CLARA	Black, D. C.	ARC	Greeley, R.	NGR 05-017-027	1607
32	UNIV OF SANTA CLARA	Dwornik, S. E.	HQ-SL	Greeley, R.	NGR 05-017-037	1609
32	UNIV OF SANTA CLARA	Goldstein, B. E.	HQ-SL	Greeley, R.	NSG 7141	1613
32	UNIV OF SANTA CLARA	Goldstein, B. E	HQ-SL	Aggarwal, H. R.	NSG 7330	1614
32	UNIV SO CAROLINA-COL	Dwornik, S. E.	HQ-SL	Nummedal, D.	NSG 7976	3257
32	UNIV TENNESSEE-KNOXV	Bensko, J.	MSFC	Shahrokhi, F.	NAS 8-32034	3288
32	UNIV TEXAS-AUSTIN	Kolenkiewicz, R.	GSFC	Tapley, B. D.	NGR 44-012-283	3445
32	UNIV TEXAS-AUSTIN	Harris, J. W.	JSC	Gose, W. A.	NSG 9021	3461
32	UNIV TEXAS-AUSTIN	Stanley, H. R	WFC	Tapley, B. D.	NAS 6-2454	3426
32	UNIV TEXAS-AUSTIN	Flinn, E. A.	HQ-SL	Silverberg, E. C.	NGR 44-012-165	3440
32	UNIV TEXAS-AUSTIN	Young, R. S	HQ-SL	Parker, P. L.	NGR 44-012-225	3442
32	UNIV TEXAS-AUSTIN	Smith, M. J.	HQ-SL	Muehlberger, W. R.	NSG 7250	3457
32	UNIV TEXAS-AUSTIN	Dwornik, S. E.	HQ-SL	Baker, V. R.	NSG 7326	3458
32	UNIV TEXAS-AUSTIN	Goldstein, B. E.	HQ-SL	Muehlberger, W R	NSG 7363	3460
32	UNIV OF UTAH	Broderick, J. C.	GSFC	Nackowski, M.	NAS 5-20955	3497
32	UNIV OF VIRGINIA	Dwornik, S. E.	HQ-SL	Howard, A.	NGR 47-005-172	3592
32	UNIV OF WASHINGTON	Horz, F.	JSC	Brownlee, D. E.	NAS 9-13743	3661
32	UNIV OF WASHINGTON	Harris, J. W.	JSC	Adams, J. D.	NSG 9032	3685
32	UNIV OF WASHINGTON	Dwornik, S E	HQ-SL	Vgolihi, F. C.	NGR 48-002-153	3672
32	UNIV OF WASHINGTON	Goldstein, B. E.	HQ-SL	Adams, J. B	NSG 7173	3681
32	UNIV OF WASHINGTON	Goldstein, B. E.	HQ-SL	Adams, J. B.	NSG 7174	3682
32	UNIV OF WASHINGTON	Goldstein, B. E.	HQ-SL	McCallum, I. S.	NSG 7313	3683
32	UNIV WISC-MADISON	Goldstein, B. E.	HQ-SL	Taylor, J. W.	NSG 7215	3730
32	UNIV WISC-PARKSIDE	Dwornik, S. E.	HQ-SL	Smith, E. I.	NGR 50-009-001	3732
32	UTAH STATE UNIV	Young, R. S.	HQ-SB	Smith, G. G.	NSG 7038	3509
32	VA MILITARY INSTITUT	Goldstein, B. E.	HQ-SL	Schreiber, H. D.	NSG 7355	3614
32	WASHINGTON UNIVERSTY	Harris, J. W.	JSC	Haskin, L. A.	NSG 9055	2667
32	WASHINGTON UNIVERSTY	Kelly, W. L., IV	LARC	Arvidson, R. E.	NSG 1084	2659
32	WASHINGTON UNIVERSTY	Goldstein, B. E.	HQ-SL	Hohenberg, C. M.	NSG 7016	2663
32	WASHINGTON UNIVERSTY	Dwornik, S. E.	HQ-SL	Arvidson, R. E.	NSG 7087	2664
32	WEST TEXAS ST UNIV	Dwornik, S. E.	HQ-SL	Underwood, J. R.	NGR 44-015-003	3489
32	YALE UNIVERSITY	Williams, R. J.	HQ-SL	Turekian, K. K.	NGR 07-004-166	1743
32	YALE UNIVERSITY	Unavailable	HQ-SL	Clark, S. P., Jr.	NSG 400	1744
33	COLUMBIA UNIVERSITY	Stanley, H. R.	WFC	Kuo, J. T.	NAS 6-2455	2804
33	HARVARD UNIVERSITY	King, J.	HQ-SU	McElroy, M B	NASW 2952	2334
33	JOHNS HOPKINS UNIV	Mueller, J. L.	GSFC	Phillips, O. M	NSG 5161	2225
33	JOHNS HOPKINS UNIV	Stanley, H. R.	WFC	Phillips, O. M.	NAS 6-2706	2214
33	NO CAROLINA STATE U	Stanley, H. R.	WFC	Long, S. R.	NAS 6-2617	2989
33	SAN JOSE STATE UNIV	Wrigley, R. C.	ARC	Broenkow, W. W.	NSG 2239	1265
33	UNIV ALASKA-FAIRBNKS	Oseroff, H	GSFC	Stringer, W	NAS 5-20959	1068
33	UNIV CALIF-L ANGELES	Stanley, H. R	WFC	Kaula, W. M.	NAS 6-2463	1466
33	UNIV CALIF-L ANGELES	Stanley, H. R	WFC	Mintz, Y	NAS 6-2703	1467
33	UNIV CALIF-S BARBARA	Barnes, W.	GSFC	Estes, J. E.	NSG 5106	1581
33	UNIV CALIF-S BARBARA	Krishen, K.	JSC	Simonett, D. S.	NAS 9-14816	1574
33	UNIV OF DELAWARE	Oseroff, H.	GSFC	Klemas, V	NAS 5-20983	1749
33	UNIV OF DELAWARE	Huang, N E.	WFC	Wu, J	NAS 6-2820	1750
33	UNIV OF KANSAS	Schroeder, L. C.	LARC	Moore, R. K.	NSG 1397	2141
39	ADELPHI UNIVERSITY	Tarlton, M. J.	GSFC	Dooher, J. P	NAS 5-23688	2777
39	AUBURN UNIV-AUBURN	Huffman, J. D.	MSFC	Vachon, R. I.	NAS 8-32215	1018
39	BETHUNE-COOKMAN COL	Withrow, R. A.	KSC	Poonai, P.	NGR 10-022-001	1828
39	BRIGHAM YOUNG UNIV	Cauffman, D. P.	HQ-ST	Jones, D. E.	NGR 45-001-011	3492
39	BROWN UNIVERSITY	Padula, S. L.	LARC	Liu, J. T.	NSG 1076	3246
39	CALIF INST OF TECH	Lowman, P. D	GSFC	Allen, C. R	NSG 5058	1193
39	CALIF INST OF TECH	Williams, T. S., Jr.	LARC	Anderson, D. L.	NAS 1-9703	1157

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
39	COLORADO STATE UNIV	Nelson, D.	GSFC	VonDerHaar, T. H.	NAS 5-22959	1635
39	COLORADO STATE UNIV	Barnett, T. L.	JSC	Smith, J. A.	NAS 9-14467	1640
39	CORNELL UNIVERSITY	Pollack, J. B.	ARC	Toon, O. B.	NCA 2-175702	2839
39	CORNELL UNIVERSITY	Vitale, J. A.	HQ-P	Liang, I.	NGL 33-010-171	2842
39	DARTMOUTH COLLEGE	Jastrow, R.	GSFC	Huke, R. E.	NSG 5014	2683
39	DARTMOUTH COLLEGE	Taylor, W. W.	HQ-ST	Sonnerup, B.	NSG 7292	2685
39	FLORIDA A&M UNIV	Schehl, T. A.	KSC	Cottrell, P. T.	NGR 10-010-002	1830
39	FLORIDA TECH UNIV	Burton, R.	KSC	Osborne, J	NAS10-8934	1845
39	FLORIDA TECH UNIV	Lee, W. H.	KSC	Vickers, D. H.	NAS10-8986	1846
39	FLORIDA TECH UNIV	Lee, W. H.	KSC	Sweet, H. C.	NGR 10-019-004	1847
39	FLORIDA TECH UNIV	Lee, W. H.	KSC	StJohn, R.	NGR 10-019-009	1848
39	GEORGIA INST OF TECH	Joyce, A. T.	JSC	Zimmer, R. P.	NAS 9-15283	1920
39	GEORGIA INST OF TECH	Paludan, C. T.	MSFC	Dees, J. W.	NAS 8-30653	1913
39	GEORGIA INST OF TECH	Downs, S. W., Jr.	MSFC	Dees, J. W.	NAS 8-31850	1917
39	GEORGIA INST OF TECH	Downs, S. W., Jr.	MSFC	Shackelford, R. G.	NAS 8-32397	1919
39	HOWARD UNIVERSITY	Pohly, J. G.	HQ-P	Ferguson, G. A.	NGL 09-011-046	1803
39	JACKSON STATE UNIV	Kent, M. I.	MSFC	Shore, F.	NSG 8026	2611
39	JACKSON STATE UNIV	Joyce, A. T.	NSTL	Nelson, F. R.	NSG 9016	2612
39	KANSAS STATE UNIV	Barnett, T. L.	JSC	Feyerherm, A. M.	NAS 9-14533	2116
39	LA ST U&A&M COL-BRGE	Vitale, J. A.	HQ-P	Whitehurst, C. A.	NGL 19-001-105	2183
39	MASS INST OF TECH	Williams, T. S., Jr.	LARC	Biemann, K.	NAS 1-9684	2361
39	MICHIGAN STATE UNIV	Vitale, J. A.	HQ-P	Boylan, M. G.	NGL 23-004-083	2505
39	MISSISSIPPI STATE U	Vitale, J. A.	HQ-P	Miller, W. F.	NGL 25-001-054	2620
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Carver, K.	NAS 9-95469	2748
39	NEW MEX ST U-LAS CR	Fenner, R. G.	JSC	Lackner, J. R.	NAS 9-95470	2749
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Carver, K. R.	NAS 9-95471	2750
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Henry, D. G.	NAS 9-95479	2752
39	NEW MEX ST U-LAS CR	Nitschke, H. A.	JSC	Henry, D. G.	NAS 9-95482	2753
39	NEW YORK UNIVERSITY	Halem, M.	GSFC	Hoffert, M. I.	NSG 5133	2888
39	NEW YORK UNIVERSITY	McLean, F. E.	LARC	Hoffert, M. I.	NSG 1298	2881
39	NO CAROLINA STATE U	Paludan, C. T.	MSFC	Welby, G.	NAS 8-31984	2990
39	OHIO STATE UNIV	Zwally, H. J.	GSFC	Rayner, J. N.	NAS 5-23380	3051
39	OLD DOMINION UNIV	Fuller, W. H., Jr.	LARC	Harris, F. S., Jr.	NSG 1245	3557
39	OLD DOMINION UNIV	Browell, E. V.	LARC	Kindle, E. C.	NSG 1343	3570
39	OLD DOMINION UNIV	Johnson, R. W.	LARC	Kuo, C. Y.	NSG 1441	3582
39	OREGON STATE UNIV	Wilson, D. F.	ARC	Murray, R. J.	NCA 2-586702	3124
39	OREGON STATE UNIV	Mueller, J.	GSFC	Zaneveld, R. V.	NAS 5-23738	3121
39	OREGON STATE UNIV	Vitale, J. A.	HQ-P	Schrumpf, B. J.	NGL 38-002-083	3127
39	PAN AMERICAN UNIV	Heydorn, R. P.	JSC	Lemaster, E. W.	NSG 9033	3334
39	PAN AMERICAN UNIV	Heydorn, R. P.	JSC	McCabe, T. F.	NSG 9053	3335
39	PENN STATE U-UNIV PK	Alford, W.	GSFC	McMurtry, G. J.	NAS 5-23859	3177
39	PRAIRIE VIEW A&M U	Browne, D.	JSC	Brams, F. A.	NSG 9006	3337
39	PURDUE UNIVERSITY	Erickson, J. D.	JSC	Landgrebe, D. A.	NAS 9-14970	2060
39	PURDUE UNIVERSITY	Childs, L. F.	JSC	Bauer, M. E.	NAS 9-15081	2061
39	PURDUE UNIVERSITY	Joosten, R. E.	JSC	Mroczynski, R.	NAS 9-15325	2062
39	PURDUE UNIVERSITY	Maurer, H. E.	WFC	Phillips, T. L.	NAS 6-2695	2058
39	PURDUE UNIVERSITY	Vitale, J. A.	HQ-P	Weismiller, R. A.	NGL 15-005-186	2064
39	SAVANNAH STATE COL	Perkins, F. L.	KSC	Ghuman, G. S.	NSG 803	1949
39	SO DAKOTA STATE UNIV	Vitale, J. A.	HQ-P	Myers, V. I.	NGL 42-003-007	3263
39	STANFORD UNIVERSITY	Schmitz, F. H.	ARC	Karamcheti, K.	NSG 2254	1362
39	STATE UNIV NY-ALBANY	Weinberg, J.	LERC	Corbett, J. W.	NSG 3095	2926
39	STATE UNIV NY-ALBANY	Weinberg, J. J.	MSFC	Schuerman, D. W.	NAS 8-31902	2923
39	STATE U NY-STONY BRK	Williams, T. S., Jr.	LARC	Owens, J.	NAS 1-10493	2939
39	TEXAS A&M UNIVERSITY	Gordon, F. J. Jr.	GSFC	Blanchard, B. J.	NAS 5-22534	3363
39	TEXAS A&M UNIVERSITY	Buras, N. E.	JSC	Rouse, J. W., Jr.	NAS 9-13904	3372
39	TEXAS A&M UNIVERSITY	Barnett, T. L.	JSC	Harlan, J. C.	NAS 9-14470	3373
39	TEXAS A&M UNIVERSITY	Blanchard, D.	JSC	Randall, J. D.	NAS 9-14828	3378
39	TEXAS A&M UNIVERSITY	Vitale, J. A.	HQ-P	Rouse, J. W., Jr.	NGL 44-001-001	3382

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
39	UNIV ALA-HUNTSVILLE	West, G. S., Jr.	MSFC	Hung, R. J.	NAS 8-31171	1047
39	UNIV ALASKA-FAIRBNKS	Vitale, J. A.	HQ-P	Miller, J. M.	NGL 02-001-092	1069
39	UNIV ALASKA-FAIRBNKS	Taylor, W. W.	HQ-ST	Akasofu, S. I.	NSG 7281	1073
39	UNIV OF ARIZONA	Vitale, J. A.	HQ-P	Johnson, J. D.	NGL 03-002-313	1117
39	UNIV CALIF-BERKELEY	Linlor, W. I.	ARC	Angelakos, D. J.	NCA 2-50704	1391
39	UNIV CALIF-BERKELEY	Wrigley, R. C.	ARC	Horne, A. J.	NSG 2003	1417
39	UNIV CALIF-BERKELEY	Evans, L. C.	ARC	Colwell, R. N.	NSG 2207	1425
39	UNIV CALIF-BERKELEY	Garcia, J. G.	JSC	Nichols, J. D	NAS 9-14565	1387
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HQ-P	Colwell, R. N.	NGL 05-003-404	1400
39	UNIV CALIF-BERKELEY	Vitale, J. A.	HQ-P	Colwell, R. N.	NSG 7220	1439
39	UNIV CALIF-BERKELEY	Goldstein, B. E.	HQ-SL	Anderson, K. A.	NSG 7127	1435
39	UNIV CALIF-DAVIS	Salomonson, V. V.	GSFC	Algazi, V. R.	NSG 5092	1454
39	UNIV CALIF-DAVIS	King, R.	LERC	Cahill, T.	NAS 3-19850	1444
39	UNIV CALIF-L ANGELES	Corrigan, J. P.	GSFC	McPherson, R. L.	NAS 5-23702	1465
39	UNIV CALIF-L ANGELES	Cauffman, D. P.	HQ-ST	Coleman, P. J., Jr.	NGL 05-007-004	1475
39	UNIV CALIF-L ANGELES	Taylor, W. W.	HQ-ST	Siscoe, G. L.	NSG 7180	1508
39	UNIV CALIF-L ANGELES	Taylor, W. W.	HQ-ST	Coleman, P. J., Jr.	NSG 7276	1510
39	UNIV CALIF-SAN DIEGO	Carpenter, L.	GSFC	Berger, J.	NGR 05-009-246	1548
39	UNIV CALIF-SAN DIEGO	Purvis, C. K.	LERC	Whipple, E C., Jr.	NSG 3150	1557
39	UNIV COLORADO-BOLDR	Jex, D.	MSFC	Toomre, J.	NAS 8-31958	1677
39	UNIV COLORADO-BOLDR	Vitale, J. A.	HQ-P	Ives, J D.	NGL 06-003-200	1683
39	UNIV DC-HARVARD GA	Westrom, J. L.	GSFC	Bever, R. S.	NGR 09-053-003	1818
39	UNIV DC-MT VERNON SQ	Nava, D. E	GSFC	Phelps, H. L.	NGR 09-050-019	1822
39	UNIV OF DAYTON	Stevenson, S. M.	LERC	Martino, J.	NAS 3-20365	3087
39	UNIV OF DELAWARE	Bowker, D. E.	LARC	Klemas, V.	NSG 1149	1751
39	UNIV OF DELAWARE	Bowker, D. E.	LARC	Klemas, V.	NSG 1398	1754
39	UNIV OF DELAWARE	Bowker, D. E.	LARC	Klemas, V	NSG 1433	1756
39	UNIV OF DENVER	Hoell, J M.	LARC	Murcray, D. G	NSG 1432	1726
39	UNIV OF FLORIDA	Pope, C. D.	KSC	Bartholic, J. F.	NAS10-8920	1854
39	UNIV OF FLORIDA	Pope, C. D.	KSC	Bartholic, J. F.	NAS10-9168	1855
39	UNIV OF FLORIDA	Vitale, J. A.	HQ-P	Brooks, H. K.	NSG 7236	1870
39	UNIV HOUSTON-HOUSTON	Williams, T. S., Jr.	LARC	Oro, J.	NAS 1-9685	3398
39	UNIV OF KANSAS	Demel, K. J.	JSC	Ulaby, F T	NAS 9-14052	2125
39	UNIV OF KANSAS	Pritchard, E. B	LARC	Lenzen, K. H.	NSG 1422	2143
39	UNIV OF KANSAS	Vitale, J. A.	HQ-P	Barr, B. G.	NGL 17-004-024	2129
39	UNIV OF KENTUCKY	Paludan, C. T.	MSFC	Zaneveld, J. R	NAS 8-31006	2160
39	UNIV MARYLAND-COL PK	Trombka, J I	GSFC	Sommer, S. E.	NAS 5-23457	2241
39	UNIV MARYLAND-COL PK	Hoell, J. M	LARC	Davis, D. D.	NSG 1075	2272
39	UNIV OF MIAMI	Bland, R. A.	KSC	Hirschberg, J G.	NAS10-8795	1876
39	UNIV OF MIAMI	Bland, R. A.	KSC	Lee, S S.	NAS10-8926	1877
39	UNIV OF MIAMI	Bland, R A.	KSC	Hirschberg, J G.	NAS10-8954	1878
39	UNIV OF MIAMI	Bland, R. A.	KSC	Lee, S. S.	NAS10-9005	1879
39	UNIV MICH-ANN ARBOR	Ruff, R C.	MSFC	Carignan, G. R	NAS 8-32661	2529
39	U MINN-MNPLS-ST PAUL	Vitale, J A.	HQ-P	Shepherd, W. G	NGL 24-005-263	2588
39	U MINN-MNPLS-ST PAUL	Cauffman, D. P.	HQ-ST	London, J.	NSG 7005	2600
39	UNIV MO-COLUMBIA	Paludan, C. T.	MSFC	Barr, P. J.	NAS 8-31767	2640
39	UNIV OF MONTANA	Overoff, H.	GSFC	Craighead, J. J.	NAS 5-23891	2669
39	UNIV NEBRASKA-LINCLN	Vitale, J. A.	HQ-P	Carlson, M P.	NGL 28-004-020	2673
39	UNIV OF SANTA CLARA	Wilson, D. E.	ARC	Danielson, R L.	NCA 2-685710	1602
39	UNIV OF SANTA CLARA	Lumb, D R.	ARC	Healy, T. J.	NCA 2-685711	1603
39	UNIV SO CAROLINA-COL	Katzberg, S. J.	LARC	Zingmark, R. G.	NSG 1334	3256
39	UNIV TENNESSEE-KNOXV	Golden, T. S.	GSFC	Snyder, W. T.	NAS 5-23898	3279
39	UNIV TENNESSEE-KNOXV	Escue, W. T.	MSFC	Rehder, J B.	NAS 8-31143	3284
39	UNIV TENNESSEE-KNOXV	Paludan, C. T.	MSFC	Shahrokhi, F	NAS 8-31980	3286
39	UNIV TENNESSEE-KNOXV	Anderson, J.	MSFC	Keller, V.	NAS 8-32611	3291
39	UNIV OF UTAH	Cawthorn, J M.	LARC	Shepherd, K. P	NSG 1272	3503
39	UNIV OF UTAH	Tuttle, F. R.	HQ-FF	Ridd, M K	NASW 2648	3503
39	UNIV OF UTAH	Vitale, J. A.	HQ-P	Ridd, M. K	NSG 7226	3503

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
39	UNIV OF VIRGINIA	Oseroff, H.	GSFC	Dolan, R.	NAS 5-20999	3587
39	UNIV OF WASHINGTON	Lumb, D. R.	ARC	Westerlund, F. V.	NCA 2-850701	3662
39	UNIV WISC-MADISON	Vitale, J. A.	HQ-P	Clapp, J. L.	NGL 50-002-127	3714
39	VIRGINIA P LY INST	Scott, J. H.	WFC	Pettry, D. E.	NAS 6-2388	3619
39	WASHINGTON UNIVERSTY	Williams, T. S., Jr.	LARC	Arvidson, R. E.	NAS 1-13889	2653
39	WASHINGTON UNIVERSTY	Daniels, J. L., Jr.	MSFC	Eastwood, L.	NAS 8-32354	2656
39	XAVIER UNIV-LA	Espy, P. N.	MSFC	Ioup, J. W.	NSG 8050	2200
41	ARIZONA STATE UNIV	Hippensteele, S. A.	LERC	Metzger, D E.	NSG 3075	1079
41	BOSTON UNIVERSITY	Yates, E. C., Jr.	LARC	Morino, L.	NGR 22-004-030	2318
41	CALIF INST OF TECH	Davis, R. C.	LARC	Babcock, C. D., Jr.	NSG 1005	1191
41	CAL POLY ST U-S LUIS	Banner, R. D.	DFRC	Sandlin, D. R.	NSG 4014	1209
41	CARNEGIE-MELLON UNIV	Bland, S. R.	LARC	Fix, G. J.	NSG 1367	3148
41	CASE WESTERN RESERVE	Bishop, A. R.	LERC	Reshotko, E.	NGR 36-027-064	3017
41	CASE WESTERN RESERVE	Bober, L. J.	LERC	Reshotko, E.	NSG 3058	3023
41	CASE WESTERN RESERVE	Sockol, P. M.	LERC	Reshotko, E.	NSG 3062	3024
41	CASE WESTERN RESERVE	Anderson, B. H.	LERC	Lynch, W. C.	NSG 3115	3029
41	CATHOLIC UNIVERSITY	Deissler, R. G.	LERC	Ling, S. C.	NGR 09-005-099	1761
41	CHRISTPHR NEWPRT COL	Morris, G. J.	LARC	Roby, A. B.	NAS 1-14034	3514
41	CITY COLLEGE OF N Y	Montgomery, R. C.	LARC	Mekel, R.	NSG 1169	2787
41	CLEMSON UNIV-CLEMSON	Doggett, R. V., Jr.	LARC	Rudisill, C. S.	NSG 1411	3252
41	CLEVELAND STATE UNIV	Dunning, R. S.	LARC	Chukwu, E. N.	NSG 1445	3039
41	COLORADO STATE UNIV	Thekaekara, M. P.	GSFC	VonDerHaar, T. H.	NAS 5-22372	1634
41	COLORADO STATE UNIV	Sockol, P. M.	LERC	Sadeh, W. Z.	NSG 3127	1657
41	CORNELL UNIVERSITY	Marek, C. J.	LERC	Gouldin, F. C.	NSG 3019	2862
41	CORNELL UNIVERSITY	Chamis, C. C.	LERC	Moon, F. C.	NSG 3080	2863
41	FLORIDA STATE UNIV	Davis, S. S.	ARC	Tam, C. K	NSG 2201	1843
41	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NAS 1-14605	1767
41	GEORGE WASHINGTON U	Margolis, K.	LARC	Liebowitz, H.	NGR 09-010-064	1773
41	GEORGE WASHINGTON U	Mulac, R. W.	LARC	Liebowitz, H.	NGR 09-010-074	1774
41	GEORGE WASHINGTON U	Anderson, R. A.	LARC	Liebowitz, H.	NGR 09-010-078	1775
41	GEORGE WASHINGTON U	Margolis, K.	LARC	Liebowitz, H.	NGR 09-010-085	1776
41	GEORGE WASHINGTON U	Suit, W. T.	LARC	Liebowitz, H.	NSG 1161	1781
41	GEORGE WASHINGTON U	Migneault, G. E.	LARC	Gross, D.	NSG 1338	1786
41	GEORGE WASHINGTON U	Creedon, J. F.	LARC	Kyriakopoulos, N	NSG 1339	1787
41	GEORGE WASHINGTON U	Reed, W. H III	LARC	Liebowitz, H.	NSG 1438	1789
41	GEORGIA INST OF TECH	Baumeister, K J	LERC	Zinn, B. T.	NSG 3036	1929
41	HAMPTON INSTITUTE	Jewell, J. W., Jr.	LARC	Williams, G. K.	NAS 1-14507	3526
41	HARVARD UNIVERSITY	Doolin, B. F.	ARC	Brockett, R W.	NSG 2265	2347
41	HOWARD UNIVERSITY	Barrowman, J. S.	GSFC	Fan, D. N	NAS 5-24242	1797
41	HOWARD UNIVERSITY	Martz, C. W.	LARC	Bainum, P. M.	NSG 1181	1807
41	ILL INST OF TECH	Beckwith, I. E.	LARC	Nagib, H. M.	NSG 1120	1976
41	ILL INST OF TECH	Giles, G. L.	LARC	Haftka, R. T.	NSG 1266	1977
41	ILL INST OF TECH	Harvey, W. D.	LARC	Nagib, H. M.	NSG 1451	1978
41	IOWA STATE UNIV	Rakich, J. V.	ARC	Tannehill, J. C	NGR 16-002-038	2094
41	IOWA STATE UNIV	Rossow, V. J.	ARC	Iversen, J. D.	NSG 2040	2096
41	IOWA STATE UNIV	Malcolm, G. N.	ARC	James, W. D	NSG 2091	2097
41	IOWA STATE UNIV	Chapman, G. T.	ARC	Herget, C. J	NSG 2150	2098
41	IOWA STATE UNIV	Presley, L. L	ARC	Cook, W. J.	NSG 2152	2099
41	IOWA STATE UNIV	Olson, L. E.	ARC	James, W. D.	NSG 2257	2100
41	IOWA STATE UNIV	Sockol, P. M.	LERC	Serovy, G. K	NSG 3033	2101
41	ISRAEL INST OF TECH	Abel, I.	LARC	Nissim, E.	NSG 7072	3748
41	ISRAEL INST OF TECH	Bush, H. G.	LARC	Weller, T.	NSG 7083	3749
41	LEHIGH UNIVERSITY	Batterton, P. G.	LERC	Rockwell, D. O.	NSG 3162	3172
41	MASS INST OF TECH	Rabbott, J. P., Jr.	ARC	Galanter, E.	NAS 2-7262	2365
41	MASS INST OF TECH	Rabbott, J P., Jr.	ARC	Ham, N. D.	NAS 2 9279	2368
41	MASS INST OF TECH	Rabbott, J. P., Jr.	ARC	Harris, W. L.	NSG 2095	2450
41	MASS INST OF TECH	Williams, L. J.	ARC	Taneja, N. K	NSG 2129	2452
41	MASS INST OF TECH	Biggers, J. C	ARC	Widnall, S E.	NSG 2142	2453

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
41	MASS INST OF TECH	Szalai, K. J.	DFRC	Whitaker, H. D.	NGL 22-009-548	2403
41	MASS INST OF TECH	Heath, D. F.	GSFC	Cunnold, D. M.	NAS 5-22915	2375
41	MASS INST OF TECH	Gloersen, P.	GSFC	Staelin, D. H	NAS 5-22929	2376
41	MASS INST OF TECH	Reid, H. J., Jr.	LARC	Simpson, R. W.	NGL 22-009-640	2405
41	MASS INST OF TECH	Queijo, M. J.	LARC	Young, L. R.	NGR 22-009-701	2419
41	MASS INST OF TECH	Rhodes, M. D.	LARC	Mar, J. W.	NGR 22-009-781	2426
41	MASS INST OF TECH	Hoad, D. R.	LARC	Widnall, S. E.	NGR 22-009-818	2431
41	MASS INST OF TECH	Gera, J.	LARC	Athans, M.	NSG 1018	2434
41	MASS INST OF TECH	Bland, S. R.	LARC	Harris, W. L.	NSG 1219	2437
41	MASS INST OF TECH	Boyden, R. P.	LARC	Covert, E. E.	NSG 1292	2438
41	MASS INST OF TECH	Boyden, R. P.	LARC	Covert, E. E.	NSG 1356	2444
41	MASS INST OF TECH	Queijo, M. J.	LARC	Young, L. R.	NSG 1416	2446
41	MASS INST OF TECH	McNally, W. D.	LERC	Kerrebrock, J. L.	NAS 3-20473	2371
41	MASS INST OF TECH	McNally, W. D.	LERC	Kerrebrock, J. L.	NGL 22-009-383	2401
41	MASS INST OF TECH	Holms, A. G.	LERC	Witmer, E. A.	NGR 22-009-339	2409
41	MASS INST OF TECH	Baumeister, K. J.	LERC	Ingard, K. U.	NGR 22-009-805	2430
41	MASS INST OF TECH	Norgren, C. T.	LERC	Keck, J. C.	NSG 3076	2464
41	MASS INST OF TECH	Adamczyk, J. J.	LERC	Kerrebrock, J. L.	NSG 3079	2465
41	MASS INST OF TECH	McNally, W. D.	LERC	Kerrebrock, J. L.	NSG 3093	2467
41	MASS INST OF TECH	Baumeister, K. J.	LERC	Ungard, K. U.	NSG 3129	2469
41	MICHIGAN STATE UNIV	Hardin, J. C.	LARC	Foss, J. F.	NGR 23-004-091	2506
41	MISSISSIPPI STATE U	Bobbitt, P. J.	LARC	Thompson, J. F.	NGR 25-001-055	2621
41	MISSISSIPPI STATE U	Hall, A. W.	LARC	Cross, E. J., Jr.	NSG 1083	2622
41	MISSISSIPPI STATE U	Harris, R. L.	LARC	Bennett, A. G., Jr.	NSG 1249	2624
41	MISSISSIPPI STATE U	Gera, J.	LARC	Bennett, A. G., Jr.	NSG 1284	2625
41	MISSISSIPPI STATE U	McLemore, H. C.	LARC	Cross, E. J., Jr.	NSG 1402	2627
41	MISSISSIPPI STATE U	Judd, J. H.	LARC	Cross, E. J., Jr.	NSG 1454	[illegible]28
41	MISSISSIPPI STATE U	Darden, J. H.	MSFC	Mitchell, G.	NAS 8-31568	[illegible]16
41	MISSISSIPPI STATE U	Clever, W. W.	MSFC	Shepard, W. S.	NAS 8-31770	2617
41	NEW YORK UNIVERSITY	Hicks, R. M.	ARC	Garabedian, P. R.	NGR 33-016-201	2880
41	NEW YORK UNIVERSITY	Darden, C. M.	LARC	Ting, L.	NGL 33-016-119	2876
41	NEW YORK UNIVERSITY	Huber, P. W.	LARC	Agnone, A. M.	NGR 33-016-131	2877
41	NEW YORK UNIVERSITY	Edwards, C. L.	LARC	Zakkay, V.	NSG 1444	2882
41	NO CAROLINA STATE U	Crane, H. L.	LARC	Smetana, F. O.	NSG 1077	2995
41	NO CAROLINA STATE U	Walberg, G. D.	LARC	Dejarnette, F. R.	NSG 1287	2999
41	NO CAROLINA STATE U	Brooks, T. F.	LARC	Hodgson, T. H.	NSG 1377	3002
41	NO CAROLINA STATE U	Campbell, J. F.	LARC	Dejarnette, F. R.	NSG 1437	3004
41	NORTHWESTERN UNIV	Williams, L. J.	ARC	Spencer, F. A.	NSG 2149	1984
41	OHIO STATE UNIV	Galloway, T. L.	ARC	Gregorek, G. M.	NAS 2-9714	3049
41	OHIO STATE UNIV	Barnwell, R. W.	LARC	Gregorek, G. M.	NAS 1-14406	3047
41	OHIO STATE UNIV	Hall, A. W.	LARC	Gregorek, G. M.	NSG 1184	3061
41	OHIO STATE UNIV	Judd, J. H.	LARC	Gregorek, G. M.	NSG 1327	3062
41	OHIO UNIVERSITY	Jackson, C. T.	ARC	Lilley, R. W.	NAS 2-9431	3069
41	OKLAHOMA STATE UNIV	Steinle, F. W., Jr.	ARC	Tiederman, W. G.	NCA 2-575701	3109
41	OLD DOMINION UNIV	Duberg, J. E.	LARC	Roberts, A. S., Jr	NGR 47-003-052	3537
41	OLD DOMINION UNIV	Hefner, J. N.	LARC	Goglia, G. L.	NSG 1087	3543
41	OLD DOMINION UNIV	Harris, J. E.	LARC	Cooke, C. H.	NSG 1098	3544
41	OLD DOMINION UNIV	Hefner, J. N.	LARC	Ash, R. L.	NSG 1100	3545
41	OLD DOMINION UNIV	Kershner, D. D.	LARC	Barna, P. S.	NSG 1143	3548
41	OLD DOMINION UNIV	Davis, J. G., Jr.	LARC	Hyer, M. W.	NSG 1167	3550
41	OLD DOMINION UNIV	Harris, J. E.	LARC	Goglia, G. L.	NSG 1226	3554
41	OLD DOMINION UNIV	Adelman, H. M.	LARC	Goglia, G. L.	NSG 1260	3559
41	OLD DOMINION UNIV	Peterson, J. B., Jr.	LARC	Goglia, G. L.	NSG 1315	3563
41	OLD DOMINION UNIV	Hunt, L. R.	LARC	Keshock, E. G.	NSG 1318	3564
41	OLD DOMINION UNIV	Jenkins, J. L.	LARC	Goglia, G. L.	NSG 1344	3571
41	OLD DOMINION UNIV	Beach, H. L., Jr.	LARC	Goglia, G. L.	NSG 1348	3572
41	OLD DOMINION UNIV	Gloss, B. B.	LARC	Kuhlman, J. M.	NSG 1357	3574
41	OLD DOMINION UNIV	Hammond, C. E.	LARC	Goglia, G. L.	NSG [illegible]70	3576

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NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
41	OREGON STATE UNIV	Iliff, K. W.	DFRC	Ruzicka, J.	NSG 4013	3128
41	PENN STATE U-UNIV PK	Mantay, W. R.	LARC	Eisenhuth, J. J.	NGL 39-009-172	3189
41	PENN STATE U-UNIV PK	Fisher, B. D.	LARC	McCormick, B. W.	NSG 1308	3195
41	PENN STATE U-UNIV PK	Britsch, W. R.	LERC	Lakshminarayana, B.	NGL 39-009-007	3186
41	PENN STATE U-UNIV PK	Stone, J. R.	LERC	Arndt, R. E.	NGR 39-009-270	3193
41	PENN STATE U-UNIV PK	Heidmann, M. F.	LERC	Lakshminarayana, B.	NSG 3012	3202
41	PENN STATE U-UNIV PK	Gelder, T. F.	LERC	Henderson, R. E.	NSG 3031	3204
41	PENN STATE U-UNIV PK	Sockol, P. M.	LERC	Lakshminarayana, B.	NSG 3032	3205
41	POLY INST OF NY	Rudy, D. H.	LARC	Rubin, S. G.	NSG 1244	2896
41	POLY INST OF NY	Salas, M. D.	LARC	Moretti, G.	NSG 1248	2897
41	POLY INST OF NY	Morgan, H. L., Jr.	LARC	Krenkel, A. R.	NSG 1500	2898
41	PRINCETON UNIVERSITY	Key, D. L.	ARC	Dukes, T. A.	NAS 2-9437	2697
41	PRINCETON UNIVERSITY	Brigadier, W. L.	ARC	Dukes, T. A.	NGR 31-001-277	2714
41	PRINCETON UNIVERSITY	Horstman, C. C.	ARC	Bogdonoff, S. M.	NSG 2114	2719
41	PRINCETON UNIVERSITY	Rabbott, J. Jr.	ARC	Curtiss, H. C., Jr.	NSG 2181	2720
41	PRINCETON UNIVERSITY	Davis, S. S.	ARC	Dowell, E. H.	NSG 2194	2721
41	PRINCETON UNIVERSITY	Miller, G. K.	LARC	Sockel, E.	NAS 1-13502	2696
41	PRINCETON UNIVERSITY	Mixson, J. S.	LARC	Dowell, E. H.	NGL 31-001-146	2709
41	PRINCETON UNIVERSITY	Reid, H. J., Jr.	LARC	Graham, D.	NGL 31-001-252	2710
41	PRINCETON UNIVERSITY	Mixson, J. S.	LARC	Dowell, E. H.	NSG 1253	2717
41	PRINCETON UNIVERSITY	Stone, J. R.	LERC	Plett, E. G.	NGR 31-001-307	2715
41	PURDUE UNIVERSITY	Marvin, J. G.	ARC	Walker, J. D.	NSG 2135	2071
41	PURDUE UNIVERSITY	Williams, L. J.	ARC	Drake, J. W.	NSG 2158	2072
41	PURDUE UNIVERSITY	Berry, D. T.	DFRC	Swaim, R. L.	NSG 4003	2079
41	PURDUE UNIVERSITY	Landrum, E. J.	LARC	Marshall, F. J.	NGR 15-005-119	2065
41	PURDUE UNIVERSITY	Pao, S. P.	LARC	Kentzer, C. P.	NSG 1293	2070
41	PURDUE UNIVERSITY	Minner, G. L.	LERC	Vaidya, P. G.	NAS 3-18010	2055
41	PURDUE UNIVERSITY	Bishop, A. R.	LERC	Hoffman, J. D.	NGR 15-005-162	2067
41	PURDUE UNIVERSITY	Bishop, A. R.	LERC	Hoffman, J. D.	NGR 15-005-191	2068
41	PURDUE UNIVERSITY	Davidson, H. W.	LERC	LEcuyer, M. R.	NSG 3071	2075
41	PURDUE UNIVERSITY	Katsanis, T.	LERC	Thompson, H. D.	NSG 3105	2076
41	PURDUE UNIVERSITY	Lehtinen, B.	LERC	Leonard, R. G.	NSG 3115	2077
41	PURDUE UNIVERSITY	Serafini, J. S.	LERC	Sullivan, J. P.	NSG 3135	2078
41	RENSSELAER POLY-NY	Adams, W. M., Jr.	LARC	Kaufman, H.	NSG 1384	2915
41	SAN JOSE STATE UNIV	Swan, P. R.	ARC	Miller, A.	NCA 2-675520	1237
41	SAN JOSE STATE UNIV	Hicks, R. M.	ARC	Leonard, T.	NCA 2-675709	1242
41	STANFORD UNIVERSITY	Denery, D. G.	ARC	DeBra, D. B.	NAS 2-9083	1272
41	STANFORD UNIVERSITY	Leonard, A.	ARC	Buneman, O.	NCA 2-745718	1300
41	STANFORD UNIVERSITY	Franklin, J. A.	ARC	DeBra, D. B.	NSG 2100	1346
41	STANFORD UNIVERSITY	Galloway, T. L.	ARC	Shevell, R. S.	NSG 2190	1352
41	STANFORD UNIVERSITY	Belsley, S.	ARC	Dajani, J. S.	NSG 2203	1354
41	STANFORD UNIVERSITY	Davis, S. S.	ARC	Karamcheti, K.	NSG 2233	1357
41	STANFORD UNIVERSITY	Cleveland, W. B.	ARC	Powell, J. D.	NSG 2250	1360
41	STANFORD UNIVERSITY	Peterson, V. L.	ARC	Karamcheti, K.	NSG 2255	1363
41	STANFORD UNIVERSITY	McCroskey, W. J.	ARC	Reynolds, W. C.	NSG 2258	1364
41	STANFORD UNIVERSITY	Kordes, E. E.	DFRC	McIntosh, S. C., Jr.	NGL 05-020-498	1313
41	STANFORD UNIVERSITY	Edwards, J. W.	DFRC	DeBra, D. B.	NSG 4002	1366
41	STANFORD UNIVERSITY	Doggett, R. V., Jr.	LARC	Ashley, H.	NGL 05-020-243	1309
41	STANFORD UNIVERSITY	Reed, W. H., III	LARC	Herrmann, G.	NGL 05-020-397	1312
41	STANFORD UNIVERSITY	Gaugler, R. E.	LERC	Kays, W. M.	NAS 3-14336	1274
41	TEL-AVIV UNIVERSITY	Mateer, G. G.	ARC	Brosh, A.	NSG 7311	3751
41	TEXAS A&I UNIVERSITY	Priem, R. J.	LERC	OHara, J. C.	NSG 3112	3361
41	TEXAS A&M UNIVERSITY	Malcolm, G. N.	ARC	MacHa, J. M.	NSG 2123	3388
41	TEXAS A&M UNIVERSITY	Wong, J. T.	ARC	Foster, J. W.	NSG 2226	3389
41	TEXAS A&M UNIVERSITY	Hovis, W. A.	GSFC	El-Sayed, S. Y.	NAS 5-22966	3364
41	TEXAS A&M UNIVERSITY	Hillje, E. R.	JSC	Cavin, R. K., III	NAS 9-14478	3374
41	TEXAS A&M UNIVERSITY	South, J. C., Jr.	LARC	Carlson, L. A.	NSG 1174	3385
41	TEXAS A&M UNIVERSITY	Chambers, J. R.	LARC	Chevalier, H. L.	NSG 1407	3387

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
41	UNIV OF ARIZONA	Ballhaus, W. F.	ARC	Seebass, A. R.	NSG 2112	1123
41	UNIV ARKANSAS-FAYETV	Ragent, B.	ARC	Testerman, M. K.	NGL 04-001-007	1152
41	UNIV ARKANSAS-LTL RK	Johnson, D. A.	ARC	Testerman, M. K	NCA 2-45601	1154
41	UNIV CALIF-BERKELEY	Chapman, G. T.	ARC	Holt, M.	NGR 05-003-451	1407
41	UNIV CALIF-BERKELEY	Ciffone, D. L.	ARC	Wehausen, J. V.	NSG 2110	1421
41	UNIV CALIF-BERKELEY	Waters, M. H.	ARC	Kanafani, A.	NSG 2127	1423
41	UNIV CALIF-BERKELEY	Ardema, M. D.	ARC	Leitmann, G.	NSG 2242	1427
41	UNIV CALIF-DAVIS	Marvin, J. G.	ARC	Launder, B.	NSG 2256	1453
41	UNIV CALIF-DAVIS	Nelson, D.	GSFC	Coulson, K. L.	NAS 5-22964	1445
41	UNIV CALIF-L ANGELES	Chapman, G. T.	ARC	Cole, J. D.	NSG 2171	1493
41	UNIV CALIF-L ANGELES	Redless, H. A.	DFRC	Balakrishnan, A. V.	NGL 05-007-379	1479
41	UNIV CALIF-L ANGELES	Stroud, W. J.	LARC	Schmit, L. A.	NGR 05-007-337	1486
41	UNIV CALIF-L ANGELES	Hammond, C. E.	LARC	Friedmann, P.	NGR 05-007-414	1489
41	UNIV CALIF-L ANGELES	Grobman, J. S.	LERC	English, J. M.	NSG 3116	1495
41	UNIV CALIF-SAN DIEGO	Cary, A. M., Jr.	LARC	Libby, P. A.	NSG 1386	1552
41	UNIV OF CINCINNATI	Burke, J. A.	ARC	Tabakoff, W.	NAS 2-7850	3073
41	UNIV OF CINCINNATI	Inouye, M.	ARC	Ghia, U.	NSG 2268	3079
41	UNIV OF CINCINNATI	Suit, W. T.	LARC	Wells, W. R.	NGR 36-004-061	3074
41	UNIV OF CINCINNATI	Dunavant, J. C.	LARC	Polak, A.	NSG 1208	3078
41	UNIV OF CINCINNATI	Prust, H. W., Jr.	LERC	Tabakoff, W.	NGR 36-004-064	3075
41	UNIV OF CINCINNATI	Jones, R. E.	LERC	Kauffman, C. W.	NSG 3045	3082
41	UNIV OF CINCINNATI	Stepka, F. S.	LERC	Tabakoff, W.	NSG 3066	3083
41	UNIV COLORADO-BOLDR	Davis, S. S.	ARC	Kadlec, R. A.	NSG 2128	1693
41	UNIV COLORADO-BOLDR	Deissler, R. G.	LERC	Uberoi, M. S.	NGR 06-003-208	1690
41	UNIV OF CONNECTICUT	Gregory, T. J.	ARC	White, P. R.	NSG 2155	1737
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-31294	3090
41	UNIV OF DAYTON	Camp, D. W.	MSFC	Leurs, J. K.	NAS 8-32111	3091
41	UNIV OF DELAWARE	Cooper, P. A.	LARC	Daugherty, R. L.	NSG 1368	1753
41	UNIV OF FLORIDA	Malcolm, G. N.	ARC	Clarkson, M. H.	NSG 2120	1865
41	UNIV OF FLORIDA	Margason, R. J.	LARC	Fearc, R. L.	NGL 10-005-127	1859
41	UNIV HOUSTON-HOUSTON	Eggleston, J. M.	JSC	Michalopoulos, C. O.	NAS 9-15193	3407
41	UNIV HOUSTON-HOUSTON	Hefner, J. N.	LARC	Hussain, A. K.	NSG 1290	3416
41	UNIV ILLINOIS-CHICGO	Evans, J. S.	LARC	Chung, P. M.	NSG 1150	2019
41	UNIV ILLINOIS-URBANA	Salmirs, S.	LARC	Jensen, R. S.	NAS 1-14731	2021
41	UNIV ILLINOIS-URBANA	Stickle, J. W.	LARC	Ormsbee, A. I.	NGR 14-005-194	2028
41	UNIV ILLINOIS-URBANA	Jordan, F. L., Jr.	LARC	Ormsbee, A. I.	NSG 1434	2033
41	UNIV ILLINOIS-URBANA	Bober, L. J	LERC	Chow, W. L.	NGL 14-005-140	2024
41	UNIV ILLINOIS-URBANA	Karchmer, A. M.	LERC	Jones, B. G	NGR 14-005-149	2025
41	UNIV OF IOWA	Stockman, N. O.	LERC	Chou, D. C.	NSG 3117	2113
41	UNIV OF KANSAS	Seiff, A.	ARC	Muirhead, V. U	NCA 2-365702	2128
41	UNIV OF KANSAS	Galloway, T. L.	ARC	Roskam, J.	NSG 2145	2144
41	UNIV OF KANSAS	Fields, R. A.	DFRC	Lenzen, K. H.	NSG 4006	2146
41	UNIV OF KANSAS	Deets, D. A.	DFRC	Grose, D. L.	NSG 4007	2147
41	UNIV OF KANSAS	Jenkins, J. M.	DFRC	Lenzen, K. H.	NSG 4008	2148
41	UNIV OF KANSAS	Deets, D. A.	DFRC	Talley, H. E.	NSG 4012	2150
41	UNIV OF KANSAS	Ward, J. F.	LARC	Muirhead, V. U.	NAS 1-12976	2121
41	UNIV OF KANSAS	Crane, H. L.	LARC	Kohlman, D. L.	NGR 17-002-072	2130
41	UNIV OF KANSAS	Pride, R. A.	LARC	Lenzen, K. H.	NGR 17-00.-027	2132
41	UNIV OF KANSAS	Lamar, J. E.	LARC	Roskam, J.	NSG 1046	2133
41	UNIV OF KANSAS	Hammond, C. E.	LARC	Lenzen, K. H.	NSG 1122	2134
41	UNIV OF KANSAS	Campbell, J. F.	LARC	Lan, C. E.	NSG 1139	2135
41	UNIV OF KANSAS	Stephens, D. G.	LARC	Roskam, J.	NSG 1301	2139
41	UNIV OF KANSAS	Hewes, D. E.	LARC	Roskam, J.	NSG 1421	2142
41	UNIVERSITY OF LOWELL	Fralich, R. W	LARC	McElman, J. A	NSG 1295	2495
41	UNIV MARYLAND-COL PK	McComb, H. G., Jr	LARC	Schaeffer, H. G.	NSG 1193	2274
41	UNIV MD-EASTRN SHORE	Raine, A. W.	WFC	Nagarajon, N.	NGR 21-119-002	2309
41	UNIV MICH-ANN ARBOR	Feistel, T. W.	ARC	Kroeger, R. A.	NSG 2018	2551
41	UNIV MICH-ANN ARBOR	Anderson, S. B.	ARC	Kroeger, R. A.	NSG 2113	2552

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
41	UNIV MICH-ANN ARBOR	Howard, J. C	ARC	Howe, R. M.	NSG 2245	2553
41	UNIV MICH-ANN ARBOR	McCarty, J. L.	LARC	Clark, S. R	NGL 23-005-010	2534
41	UNIV MICH-ANN ARBOR	McCarty, J. L	LARC	Clark, S. K	NSG 1080	2544
41	UNIV MICH-ANN ARBOR	Stough, H. P., III	LARC	Kroeger, R. A	NSG 1229	2545
41	UNIV MICH-ANN ARBOR	Czarnecki, K. R	LARC	Siebel, M.	NSG 1326	2548
41	UNIV MICH-ANN ARBOR	Dunning, R. S	LARC	Vinh, N. X.	NSG 1448	2550
41	UNIV MICH-ANN ARBOR	Cooper, L. P	LERC	Nicholls, J. A.	NSG 3148	2554
41	UNIV MISS-UNIVERSITY	Gutierrez, O. A	LERC	Shields, F. D	NAS 3-19431	2631
41	UNIV MO-ROLLA	Mixson, J. S	LARC	Koval, L. R	NSG 1050	2648
41	UNIV NEVADA-L VEGAS	Davis, S. S.	ARC	Fromme, J. A	NSG 2140	2678
41	UNIV OF NOTRE DAME	Feiler, C. E	LERC	Atassi, H.	NSG 3037	2085
41	UNIV OF NOTRE DAME	Haggard, J. B	LERC	Kanury, A. M.	NSG 3133	2087
41	UNIV OKLAHOMA-NORMAN	Hassell, J. L., Jr	LARC	Bergey, K. H	NAS 1-14986	3113
41	UNIV OF SANTA CLARA	Buell, D. A	ARC	Cheng, D. Y	NGR 05-017-033	1608
41	UNIV OF SOUTHAMPTON	Kilgore, R. A	LARC	Goodyer, M. J	NSG 7172	3747
41	UNIV OF SOUTHERN CAL	Semer, J. M	LARC	Laufer, J	NSG 1221	1628
41	UNIV OF SOUTHERN CAL	Stein, M	LARC	Seide, P.	NSG 1401	1629
41	UNIV STHN COLORADO	Hruby, R. J	ARC	Jenkins, R.	NSG 2048	1732
41	UNIV TENNESSEE-KNOXV	Silcox, R. J	LARC	Lumsdaine, E	NSG 1081	3298
41	UNIV TENNESSEE-KNOXV	Hammond, C. E	LARC	Lumsdaine, E	NSG 1171	3300
41	UNIV TENNESSEE-KNOXV	Bland, S. R	LARC	Kimble, K. R	NSG 1224	3301
41	UNIV TENNESSEE-KNOXV	Bland, S. R	LARC	Gunzburger, M. D	NSG 1366	3302
41	UNIV TENNESSEE-KNOXV	Dittmar, J. H	LERC	Lumsdaine, E	NGR 43-001-134	3296
41	UNIV TENNESSEE-KNOXV	Reshotko, M.	LERC	Maus, J. R	NGR 43-001-135	3297
41	U TENNESSEE-NASHVILE	Robinson, J. C	LARC	Blackburn, C. E	NSG 1340	3308
41	UNIV TEXAS-ARLINGTON	Rubesin, M. W	ARC	Payne, F. R	NSG 2077	3423
41	UNIV TEXAS-AUSTIN	Coe, C. F	ARC	Panton, R. L	NSG 2189	3449
41	UNIV TEXAS AUSTIN	Goodrich, W. D	JSC	Bertin, J. J	NAS 9-13680	3428
41	UNIV TEXAS-AUSTIN	Nitschke, H. V	JSC	Crow, G. L	NAS 9-15401	3435
41	UNIV TEXAS-AUSTIN	Hilton, D. A	LARC	Blackstock, D. T	NAS 1-14160	3424
41	UNIV OF TOLEDO	Spera, D. A	LERC	Koza, K. R	NSG 3139	3096
41	UNIV OF TORONTO	Evans, J. S.	LARC	Glass, I. I	NAS 1-14843	3742
41	UNIV OF VIRGINIA	Lichtenstein, J. H	LARC	Jacobson, I. R	NGR 47-005-208	3594
41	UNIV OF VIRGINIA	Schoenster, J. A	LARC	Haviland, J. K	NGR 47-005-219	3595
41	UNIV OF VIRGINIA	Kilgore, R. A	LARC	Zapata, R. N	NSG 1010	3596
41	UNIV OF VIRGINIA	Mayes, W. H	LARC	Jacobson, I. D	NSG 1180	3598
41	UNIV OF WASHINGTON	Rose, W. C	ARC	Childs, M. E	NGL 48-002-047	3667
41	UNIV OF WASHINGTON	Stemle, F. W., Jr	ARC	Russell, D. A	NGR 48-002-107	3669
41	UNIV OF WASHINGTON	Rose, W. C	ARC	Childs, M. E	NGR 48-002-141	3670
41	UNIV OF WASHINGTON	Smith, D. W	ARC	Joppa, R. G	NSG 2176	3675
41	UNIV OF WASHINGTON	Heyson, H. H	LARC	Joppa, R. G	NGL 48-002-010	3664
41	UNIV OF WASHINGTON	Heyson, H. H	LARC	Rae, W. H.	NGL 48-002-035	3665
41	UNIV WIS-MILWAUKEE	Young, W. H., Jr	LARC	Bratanow, T.	NGR 50-007-001	3731
41	VIRGINIA POLY INST	Duberg, J. E	LARC	Drew, D. R	NGR 47-004-090	3624
41	VIRGINIA POLY INST	Montgomery, R. C	LARC	Cliff, E. M	NSG 1015	3627
41	VIRGINIA POLY INST	Newman, J. C., Jr.	LARC	Smith, C. W	NSG 1024	3629
41	VIRGINIA POLY INST	Kvaternik, R. G.	LARC	Metrovitch, L	NSG 1114	3632
41	VIRGINIA POLY INST	Montgomery, R. C.	LARC	VanLandingham, H. F	NSG 1239	3637
41	VIRGINIA POLY INST	Hefner, J. N	LARC	Nayfeh, A. H.	NSG 1255	3640
41	VIRGINIA POLY INST	Yates, E. C., Jr	LARC	Nayfeh, A. H	NSG 1262	3641
41	VIRGINIA POLY INST	Creedon, J. F	LARC	VanLandingham, H. F	NSG 1354	3645
41	VIRGINIA POLY INST	Hefner, J. N	LARC	Saric, W. S	NSG 1358	3646
41	VIRGINIA POLY INST	Shaw, R. J.	LERC	Jakubowski, A. K.	NSG 3073	3653
41	VIRGINIA STATE COL	Lansing, D. L.	LARC	Agrawal, K. M	NGL 47-014-009	3654
41	WASHINGTON UNIVERSITY	Morse, H. A.	ARC	Hohenemser, K. H.	NAS 2-7613	2654
41	WASHINGTON UNIVERSITY	Waters, M. H	ARC	Haefner, L. E.	NSG 2170	2661
41	WAYNE STATE UNIV	Liu, C. H.	LARC	Chow, P. T	NSG 1330	2568
41	WEST VIRGINIA UNIV	Morris, C. E., Jr	LARC	Gibbs, L. H	NSG 1412	3692

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT CONTRACT NUMBER	ACC NO
41	WICHITA STATE UNIV	Hicks, R. M	ARC	Wentz, W. H., Jr.	NSG 2134	2156
41	WICHITA STATE UNIV	Noonan, K. W.	LARC	Wentz, W. H., Jr	NGR 17-003-021	2154
41	WICHITA STATE UNIV	McGhee, R. J.	LARC	Wentz, W. H., Jr	NSG 1165	2155
41	WRIGHT STATE UNIV	Quejo, M. J.	LARC	Wells, W. R.	NSG 1417	3105
41	YOUNGSTOWN STATE U	Steinle, F. W., Jr.	ARC	Pejack, E. R	NCA 2-890701	3107
42	CAL STATE U-SACRAMEN	Priem, R. J.	LERC	Reardon, F. H.	NGR 05-058-003	1224
42	COLORADO STATE UNIV	Priem, R. J.	LERC	Mitchell, C. E.	NGR 06-002-095	1644
42	COLORADO STATE UNIV	Mantenieks, M. A.	LERC	Wilhelm, H. E.	NGR 06-002-147	1648
42	COLORADO STATE UNIV	Rawlin, V. K	LERC	Kaufman, H. R.	NSG 3011	1653
42	CORNELL UNIVERSITY	McCreight, C. R.	ARC	Houck, J. R.	NCA 2-175703	2840
42	GEORGIA INST OF TECH	Stevens, G. H.	LERC	Zimmer, R. P.	NAS 3-20110	1905
42	GEORGIA INST OF TECH	Priem, R. J	LERC	Zinn, B. T.	NSG 3052	1930
42	HOWARD UNIVERSITY	Horner, G. C.	LARC	Jones, I. W.	NSG 1320	1808
42	MASS INST OF TECH	Young, R. S.	HQ-SL	Biemann, K	NGR 22-009-102	2407
42	NEW MEX ST U-LAS CR	Schlumper, G. E.	KSC	Noda, T.	NAS10-9115	2755
42	PENN STATE U-UNIV PK	Priem, R. J.	LERC	Faeth, G. M.	NGR 39-009-077	3191
42	PENN STATE U-UNIV PK	Cramblitt, D	HQ-MT	Kaplan, M	NSG 7078	3211
42	POLY INST OF NY	Hoppe, J. C	LARC	Lederman, S	NSG 1198	2895
42	PRINCETON UNIVERSITY	Lazar, J.	HQ-RP	Jahn, R. G.	NGL 31-001-005	2707
42	STANFORD UNIVERSITY	Howe, J. T.	ARC	Bershader, D	NSG 2085	1344
42	STANFORD UNIVERSITY	Nachtsheim, P. R	ARC	Baganoff, D	NSG 2166	1351
42	STANFORD UNIVERSITY	Kant, S.	GSFC	Berra, D. B	NAS 5-21960	1276
42	UNIV ALA-HUNTSVILLE	Swenson, G. R.	MSFC	Hermann, R.	NAS 8-28248	1041
42	UNIV OF DAYTON	Entle, I. G.	LERC	Engler, N. A.	NAS 3-20[illegible]2	3088
42	UNIV OF DELAWARE	Cooper, P. A	LARC	Pipes, R. B	NSG 1409	1755
42	UNIV OF LOUISVILLE	Burdett, G. L.	GSFC	Shelton, D.	NAS 5-23664	2172
42	UNIV OF LOUISVILLE	Gross, L. A	MSFC	Childs, D. W.	NAS 8-31233	2173
42	UNIV MICH-ANN ARBOR	Junod, T. L.	LERC	Nicholls, J. A	NGR 23-005-536	2542
42	UNIV TENNESSEE-KNOXV	Hertsgaard, H. B.	MSFC	Kennedy, F. J	NAS 8-27296	3281
43	ATHENS STATE COLLEGE	Shriver, F. L.	MSFC	McNutt, R. C	NAS 8-32483	1013
43	AUBURN UNIV-AUBURN	Shackleford, B. W., Jr	MSFC	Sforzini, R. H	NCA 8-120	1022
43	AUBURN UNIV-AUBURN	Shackleford, B. W., Jr	MSFC	Sforzini, R. H	NCA 8-124	1023
43	AUBURN UNIV-AUBURN	Shackleford, B. W., Jr	MSFC	Sforzini, R. H	NCA 8-125	1024
43	AUBURN UNIV-AUBURN	Nola, F. J	MSFC	Russell, D.	NCA 8-128	1025
43	BUCKNELL UNIVERSITY	Gluyas, R. E	LERC	Snyder, W. J	NSG 3136	3142
43	CASE WESTERN RESERVE	Dunning, J. W., Jr	LERC	Angus, J. C	NSG 3074	3025
43	FLORIDA INST OF TECH	Franks, H. H.	KSC	Bowman, T. E	NAS10-8399	1836
43	FLORIDA INST OF TECH	Franks, H. H.	KSC	Bowman, T. E	NAS10-9166	1837
43	GRAMBLING STATE UNIV	Pohly, J. G.	HQ-P	Sabu, D. D.	NGR 19-011-012	2178
43	MASS INST OF TECH	Mularz, E. J.	LERC	Heywood, J. B.	NGR 22-009-378	2410
43	MASS INST OF TECH	Norgren, C. T	LERC	Heward, J. B	NSG 3102	2468
43	PENN STATE U-UNIV PK	Price, H. T	LARC	Galanti, A. V	NSG 1359	3197
43	RICE UNIVERSITY	Kissinger, L. D.	JSC	Davis, S. H	NAS 9-11827	3343
43	SAN JOSE STATE UNIV	Kourtides, D. A.	ARC	Young, W	NSG 2105	1250
43	STATE U NY-STONY BRK	Haggard, J. B	LERC	Berlad, A. L	NSG 3051	2951
43	UNIV CALIF-BERKELEY	Wydeven, T. J	ARC	Bell, A. T.	NSG 2043	1419
43	UNIV CALIF-SAN DIEGO	Haggard, J. B	LERC	Williams, F. A	NSG 3047	1554
43	UNIV OF FLORIDA	Post, R. F.	LERC	Walker, R. D., Jr	NGL 10-005-022	1857
43	UNIV OF FLORIDA	Sheibley, D. W.	LERC	Walker, R. D., Jr	NGR 10-005-182	1862
43	UNIV ILLINOIS-URBANA	Haggard, J. B.	LERC	Strehlow, R. A	NSG 3043	2037
43	UNIV OF PITTSBURGH	Kostiuk, T.	GSFC	Falk, J	NAS 5-22892	3222
43	VIRGINIA POLY INST	ONeal, R. L.	LARC	Drew, S. W	NSG 1230	3635
43	WEST VIRGINIA UNIV	Phillips, B. R.	LERC	Wen, C. Y	NSG 3134	3693
44	COLORADO STATE UNIV	Fichtl, G. H.	MSFC	Sandhorn, V. A.	NAS 8-31688	1639
44	HOWARD UNIVERSITY	Anderson, M. S.	LARC	Broome, T. H	NSG 1130	1806
44	SAN JOSE STATE UNIV	Riccitello, S. R	ARC	Sharfstein, H. B	NSG 2167	1254
44	STANFORD UNIVERSITY	Ardema, M. D	ARC	Dajani, J. S.	NCA 2-745720	1302
44	UNIV CALIF-BERKELEY	Kourtides, D. A.	ARC	Williamson, R. B	NSG 2026	1418

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
44	UNIV OF KANSAS	Pritchard, E. B	LARC	Lenzen, K. H.	NSG 1310	2140
44	VIRGINIA POLY INST	Hayduk, R. J	LARC	Kamat, M. P	NGR 47-004-114	3625
45	ALABAMA A&M UNIV	Teasdale, W. E.	JSC	Weathers, G. D.	NAS 9-14770	1000
45	ALABAMA A&M UNIV	Gould, J. M.	MSFC	Shiva, S. G	NSG 8057	1008
45	AUBURN UNIV-AUBURN	Keer, J. H.	MSFC	Pinson, L. J	NAS 8-31223	1016
45	AUBURN UNIV-AUBURN	Matheney, J. L	MSFC	Carroll, B. D	NAS 8-31572	1017
45	BROWN UNIVERSITY	Kelly, W. L., IV	LARC	Patterson, W. R., III	NSG 1222	3247
45	CASE WESTERN RESERVE	Nice, A. W	LERC	Pao, J. H.	NSG 3085	3028
45	CITY COLLEGE OF N.Y.	Kahle, D. R	GSFC	Schilling, D. L.	NSG 5013	2789
45	CITY COLLEGE OF N.Y.	Land, C. K	JSC	Schilling, D. L.	NAS 9-13940	2784
45	COLUMBIA UNIVERSITY	Schmid, P. E	GSFC	Schwartz, M.	NAS 5-23727	2801
45	DUKE UNIVERSITY	Rodriguez, G. E	GSFC	Wilson, T. G	NAS 5-22475	2977
45	DUKE UNIVERSITY	Rodriguez, G. E	GSFC	Wilson, T. G	NGL 34-001-001	2978
45	DUKE UNIVERSITY	Triner, J. E	LERC	Wilson, T. G	NSG 3157	2979
45	GEORGE WASHINGTON U	Croswell, W. F	LARC	Liebowitz, H	NGR 09-010-096	1777
45	GEORGE WASHINGTON U	Bailey, M. C	LARC	Liebowitz, H	NSG 1110	1779
45	GEORGIA INST OF TECH	King, J. L.	GSFC	Dees, J. W	NAS 5-23603	1907
45	GEORGIA INST OF TECH	King, J. L	GSFC	Dees, J. W	NAS 5-23710	1908
45	GEORGIA INST OF TECH	King, J. L.	GSFC	McMillan, R. W	NSG 5012	1932
45	GEORGIA INST OF TECH	ONeal, R. L	LARC	Blue, M. D	NAS 1-14654	1902
45	HAMPTON INSTITUTE	Katzberg, S. J	LARC	Trehan, A. K	NSG 1294	3531
45	HOFSTRA UNIVERSITY	Swift, C. T	LARC	Weissman, D. E	NGR 33-209-002	2874
45	HOWARD UNIVERSITY	Savely, R. T	JSC	Choudhury, A. K	NSG 9010	1817
45	JOHNS HOPKINS UNIV	Abshire, J. B	GSFC	Davidson, I	NSG 5210	2227
45	JOHNS HOPKINS UNIV	Bavuso, S. J	LARC	Masson, G. M	NSG 1265	2218
45	JOHNS HOPKINS UNIV	Bavuso, S. J.	LARC	Masson, G. M	NSG 1442	2219
45	KANSAS STATE UNIV	Hofman, L. B.	ARC	Ahmed, N	NCA 2-363702	2118
45	MASS INST OF TECH	Shiue, J. C	GSFC	Kong, J. A	NAS 5-24139	2381
45	MASS INST OF TECH	Schaefer, D. H	GSFC	McClellan, J. H.	NSG 5157	2474
45	MASS INST OF TECH	Armstrong, E. S	LARC	Athans, M	NSG 1312	2440
45	MASS INST OF TECH	Armstrong, E. S	LARC	Athans, M	NSG 1447	2447
45	MASS INST OF TECH	Freibaum, J	HQ-EC	Unavailable	NASW 2787	2393
45	MASS INST OF TECH	Alsberg, H	HQ-RE	Kennedy, R. S	NGL 22-009-013	2395
45	MEMPHIS ST UNIV	Shack, P. E	JSC	Morris, C. F	NAS 9-13878	3268
45	MISSISSIPPI STATE U	Pitts, E. H.	MSFC	Rogers, E. W	NAS 8-30618	2614
45	MISSISSIPPI STATE U	Wallace, G. R	MSFC	Ingels, E. M	NAS 8-31373	2615
45	NEW MEX ST U-LAS CR	Fenner, R. G	JSC	Henry, D. G	NAS 9-95477	2751
45	NO CAR A&T STATE U	Whalen, A	GSFC	Williams, E	NAS 5-24101	2982
45	NO CAR A&T STATE U	Hutchby, J. A	LARC	Alexander, W. E	1390	2986
45	NO CAROLINA STATE U	Croswell, W. F.	LARC	Kauffman, J. F	4-002-188	2992
45	NO CAROLINA STATE U	Hutchby, J. A	LARC	Hauser, J. R	N 2116	2996
45	NO CAROLINA STATE U	Benz, H. F	LARC	Snyder, W. E	NSG 1353	3000
45	NO CAROLINA STATE U	Hatfield, J. J	LARC	Stroh, R. W	NSG 1355	3001
45	NO CAROLINA STATE U	Godlewski, M. P.	LERC	Hauser, J. R	NGR 34-002-195	2993
45	OHIO STATE UNIV	Billingham, J	ARC	Dixon, R. S	NSG 2162	3063
45	OHIO STATE UNIV	Hirschmann, E	GSFC	Hodge, D. B	NAS 5-22575	3050
45	OHIO STATE UNIV	Hirschmann, E	GSFC	Hodge, D. B	NAS 5-23850	3052
45	OHIO STATE UNIV	Gilreath, M. C	LARC	Burnside, W. D	NGL 36-008-138	3057
45	OHIO UNIVERSITY	Reid, H. J., Jr	LARC	McFarland, R. H	NGR 36-009-017	3071
45	OLD DOMINION UNIV	Tripp, J. S.	LARC	Tcheng, P. E	NSG 1079	3542
45	OLD DOMINION UNIV	Hellbaum, R. F	LARC	Gogia, G. E	NSG 1177	3551
45	OLD DOMINION UNIV	Campbell, T. G	LARC	Becher, J	NSG 1331	3568
45	OLD DOMINION UNIV	Waller, M. C	LARC	Varanasi, M. R	NSG 1379	3577
45	RENSSELAER POLY-NY	Grant, E. E	ARC	Modestino, J. W	NGR 33-018-188	2913
45	SAVANNAH STATE COL	Jayroe, R. R., Jr	MSFC	Pao, M. T	NSG 8048	1950
45	SO DAKOTA SCHL MINES	Reinhardt, V. S	GSFC	Gruber, C. E	NAS 5-23470	3259
45	SOUTHERN METHODIST U	Walker, G. H	LARC	Ashley, K. E	NSG 1206	1388
45	SO UNIV-BATON ROUGE	Echelkamp, R. E	JSC	Grewal, G. S	NSG 9030	2194

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO
45	SO UNIV-BATON ROUGE	Trenkle, J. J.	MSFC	Anderson, J. A.	NSG 8028	2191
45	SO UNIV-BATON ROUGE	White, J. B.	MSFC	Montgomery, V. T	NSG 8053	2193
45	STANFORD UNIVERSITY	Foppa, H. R.	ARC	Spicer, W. E	NCA 2-745703	1288
45	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R. L.	NSG 2214	1355
45	STANFORD UNIVERSITY	Williams, T. S., Jr.	LARC	Tyler, G. L.	NAS 1-9701	1269
45	STANFORD UNIVERSITY	Bavuso, S. J.	LARC	McCluskev, E. J.	NSG 1410	1338
45	STANFORD UNIVERSITY	Pontious, C. E.	HQ-RE	McCarthy, J.	NASW 2916	1287
45	STANFORD UNIVERSITY	Catoe, C. E.	HQ-RE	Harris, S. E.	NGL 05-020-103	1306
45	TENNESSEE TECH U	Kadrmas, K. A.	MSFC	Childress, R. Q.	NAS 8-31252	3273
45	TENNESSEE TECH U	Humphries, W R.	MSFC	Griggs, E. I.	NCA 8-102	3275
45	TEXAS A&M UNIVERSITY	Farris, G. W.	JSC	Hulse, W. C.	NAS 9-15311	3381
45	TEXAS A&M UNIVERSITY	Hearn, C. P.	LARC	Painter, J H.	NSG 1374	3386
45	TEXAS A&M UNIVERSITY	Nowakowski, M. F.	MSFC	Porter, W. A.	NAS 8-26379	3366
45	TEXAS TECH UNIV	Day, J. L.	JSC	Portnoy, W M.	NAS 9-11162	3396
45	TUSKEGEE INSTITUTE	Crowell, C. S.	MSFC	Doreswamy, C. V.	NSG 8003	1035
45	TUSKEGEE INSTITUTE	Young, L. E	MSFC	Doreswamy, C. V.	NSG 8038	1036
45	UNIV ALA-HUNTSVILLE	Carey, W. T., Jr.	MSFC	Carter, E. A.	NAS 8-32608	1056
45	UNIV OF ARIZONA	Roman, N. G	HQ-SA	Tifft, W. G	NSG 7142	1135
45	UNIV OF CINCINNATI	Sundberg, G R.	LERC	Henderson, H. T.	NSG 3022	3080
45	UNIV OF CINCINNATI	Grier, N. T.	LERC	Nevin, J. H.	NSG 3024	3081
45	UNIV COLORADO-BOLDR	Kelsall, T.	GSFC	Lawrence, G. M.	NSG 5124	1697
45	UNIV COLORADO-BOLDR	Schy, A A.	LARC	Wang, S. H.	NSG 1213	1692
45	UNIV OF DELAWARE	Parker, L C	WFC	Robinson, D. M.	NSG 6015	1758
45	UNIV OF DENVER	Booher, C R	JSC	Venditti, F P	NAS 9-15206	1717
45	UNIV OF FLORIDA	Walker, G. H.	LARC	Li, S. S.	NSG 1425	1864
45	UNIV OF FLORIDA	Godlewski, M P.	LERC	Lindholm, F. A.	NSG 3018	1866
45	UNIV OF HAWAII-MANOA	Gilbert, L. J	LERC	Hwang, H. H	NSG 3132	1966
45	UNIV ILLINOIS-URBANA	Schaefer, D. H.	GSFC	Slotnick, D L	NAS 5-24275	2022
45	UNIV OF KANSAS	Rango, A.	GSFC	Ulaby, F. T.	NAS 5-23777	2124
45	UNIV OF KANSAS	Bailey, M. C.	LARC	Biggs, A W.	NSG 1142	2136
45	UNIV MARYLAND-COL PK	Levine, D M.	GSFC	Harger, R. O.	NSG 5048	2282
45	UNIV OF MIAMI	Shiue, J. C.	GSFC	Haskin, L. A.	S-55672A	1887
45	UNIV MICH-ANN ARBOR	Way, S H	GSFC	MacNee, A. B	NAS 5-22861	2519
45	UNIV MICH-ANN ARBOR	Bavuso, S J.	LARC	Meyer, J F	NSG 1306	2547
45	UNIV MO-ROLLA	Dawson, C. T	JSC	Tranter, W. H	NAS 9-14848	2646
45	UNIV OF NOTRE DAME	Lynch, T. J.	GSFC	Massey, J. L.	NSG 5025	2088
45	UNIV OF NOTRE DAME	Lehtinen, B.	LERC	Welch, W. J.	NSG 3048	2086
45	UNIV OKLAHOMA-NORMAN	Gross, C	LARC	Kahng, S. K.	NSG 1183	3118
45	UNIV OF PENNSYLVANIA	Durrani, S H	GSFC	Berkowitz, R S.	NAS 5-23479	3217
45	UNIV OF PITTSBURGH	McBrien, E F	LERC	Hamilton, H B.	NSG 3163	3235
45	UNIV SO CAROLINA-COL	Lowrey, D. O	MSFC	Fellers, R G	NAS 8-28660	3254
45	UNIV OF SO FLORIDA	Triner, J E	LERC	Garrett, S. J	NSG 3096	1891
45	UNIV OF SO FLORIDA	Caruso, S. V.	MSFC	Sergent, J	NAS 8-31172	1888
45	UNIV OF SOUTHERN CAL	Kutz, R L.	GSFC	Andrews, H C	NGL 05-018-118	1623
45	UNIV TENNESSEE-KNOXV	Cancro, C. A	GSFC	Pierce, J. F	NAS 5-23611	3278
45	UNIV TENNESSEE-KNOXV	Allen, W	GSFC	Rochelle, R. W	NAS 5-24250	3280
45	UNIV TENNESSEE-KNOXV	Huggins, C	MSFC	Gonzalez, R C	NAS 8-29271	3282
45	UNIV TEXAS-AUSTIN	Hirschmann, E	GSFC	Stratton, A W	NAS 5-22576	3425
45	UNIV TEXAS-AUSTIN	Roth, J. R.	LERC	Powers, E. J.	NSG 3089	3450
45	UNIV OF TOLEDO	Lehtinen, B.	LERC	Leininger, G G	NSG 3063	3092
45	UNIV OF TOLEDO	Lehtinen, B	LERC	Leininger, G G	NSG 3084	3093
45	UNIV OF UTAH	Wempe, T. E.	ARC	Plummer, R P	NGR 45-003-108	3502
45	UNIV OF VIRGINIA	Shultz, L. R	LARC	McAlpine, G A	NSG 1128	3597
45	VIRGINIA POLY INST	Hirschmann, E	GSFC	Bostian, C W.	NAS 5-22577	3618
45	VIRGINIA POLY INST	Edge, J. T.	JSC	Demerdash, N. A.	NAS 9-15091	3620
45	WAYNE STATE UNIV	Dunning, J W., Jr	LERC	Yu, F. T	NSG 3035	2570
45	WORCESTER POLY INST	Godlewski, M P	LERC	Lanyon, H P	NSG 3137	2502
45	YALE UNIVERSITY	Schaefer, D H	GSFC	Barker, R C	NGL 07-004-005	1740

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
45	YESHIVA UNIVERSITY	Godlewski, M. P.	LERC	Pollak, F.	NSG 3123	2975
46	ALABAMA A&M UNIV	Humphries, W. R.	MSFC	Saha, H.	NSG 8041	1005
46	AUBURN UNIV-AUBURN	Chapman, G. T.	ARC	Vestal, D. M., Jr.	NCA 2-48701	1021
46	CALIF INST OF TECH	Gross, L. A.	MSFC	Acosta, A. J.	NAS 8-29313	1170
46	CAL STATE U-L ANGLES	England, C.	JPL	Gold, P. I.	NSG 7763	1221
46	CAL STATE U-L ANGLES	Pohly, J. G.	HQ-P	Maniv, R	NSG 7229	1219
46	CAL STATE U-NRTHRDGE	Coe, H. H	LERC	Nypan, L. J.	NSG 3065	1222
46	CARNEGIE-MELLON UNIV	Srawley, J. E.	LERC	Swedlow, J. L.	NGR 39-087-053	3147
46	CARNEGIE-MELLON UNIV	Ludwig, L. P.	LERC	Hughes, W. F.	NSG 3023	3149
46	CASE WESTERN RESERVE	Ollendorf, S.	GSFC	Kamotani, Y.	NAS 5-24144	3009
46	CASE WESTERN RESERVE	LaBus, T. L.	LERC	Ostrach, S.	NAS 3-21046	3008
46	CASE WESTERN RESERVE	Brewe, D. E.	LERC	Savage, M.	NSG 3077	3026
46	CASE WESTERN RESERVE	Schafer, C. F.	MSFC	Ostrach, S.	NAS 8-31802	3010
46	CLEMSON UNIV-CLEMSON	Reveley, W. F.	JSC	Gaddis, J. L.	NAS 9-13669	3250
46	CLEMSON UNIV-CLEMSON	Poe, C. C., Jr	LARC	Goree, J. G.	NSG 1297	3251
46	CLEVELAND STATE UNIV	Townsend, D. P.	LERC	Kasuba, R.	NAS 3-18547	3038
46	COLORADO STATE UNIV	Kerslake, W. R.	LERC	Wilbur, P. J.	NGR 06-002-112	1647
46	COLORADO STATE UNIV	Cliff, W. C.	MSFC	Winn, C. B.	NAS 8-31237	1636
46	COLORADO STATE UNIV	Fichtl, G. H.	MSFC	Edwards, H. W.	NAS 8-31673	1638
46	GEORGIA INST OF TECH	Wedeven, L. D	LERC	Winer, W. O.	NSG 3106	1931
46	ISRAEL INST OF TECH	Ludwig, L. P	LERC	Etsion, I.	NSG 7317	3750
46	MASS INST OF TECH	Fichter, W. B.	LARC	Williams, J. H., Jr.	NSG 1349	2443
46	MEMPHIS ST UNIV	Patterson, W. C.	MSFC	Perry, E.	NAS 8-31189	3267
46	MISSISSIPPI STATE U	Fleming, D. P.	LERC	Stiffler, A. K	NSG 3111	2629
46	MISSISSIPPI STATE U	Rose, S.	MSFC	Jones, E. W	NAS 8-32214	2618
46	NEW MEX ST U-LAS CR	West, W. W	WFC	Gammill, B. G.	NAS 6-2686	2746
46	NO CAR A&T STATE U	Jones, C. O.	MSFC	Sharma, A. V.	NSG 8045	2987
46	NORTHWESTERN UNIV	Zaretsky, E. V	LERC	Cheng, H. S.	NSG 3042	1986
46	NORTHWESTERN UNIV	Coy, J. J.	LERC	Cheng, H. S	NSG 3143	1987
46	NORTHWESTERN UNIV	Wedeven, L. D.	LERC	Cheng, H. S.	NSG 3149	1988
46	OLD DOMINION UNIV	Hefner, J. N.	LARC	Goglia, G. L.	NSG 1236	3555
46	OLD DOMINION UNIV	Hanks, B. R.	LARC	Goglia, G. L.	NSG 1325	3567
46	PENN STATE U-UNIV PK	Dittmar, J. H.	LERC	Henderson, R. E	NGR 39-009-275	3194
46	PURDUE UNIVERSITY	Feiler, C. E	LERC	Peterson, A. M.	NSG 3029	2074
46	RICE UNIVERSITY	Collier, F.	JSC	Wierum, F. A.	NAS 9-15274	3345
46	ROCHESTER INST TECH	Anderson, W. J.	LERC	Rieger, N. F.	NSG 3072	2921
46	SO UNIV-BATON ROUGE	Williamson, J. G.	MSFC	Tabony, J.	NSG 8025	2190
46	SO UNIV-BATON ROUGE	Trenkle, J. J.	MSFC	Fernald, F. G.	NSG 8029	2192
46	STANFORD UNIVERSITY	Goldstein, H. E.	ARC	Bates, C.	NGR 05-020-710	1331
46	STANFORD UNIVERSITY	Gaugler, R. G.	LERC	Kays, W. M.	NSG 3124	1365
46	TENNESSEE STATE UNIV	Humphries, W. R.	MSFC	Hougton, R	NSG 8012	3271
46	TENNESSEE STATE UNIV	Kent, M. I.	MSFC	Burns, R. G.	NSG 8032	3272
46	TENNESSEE TECH U	Priem, R. J.	LERC	Ventrice, B.	NGR 43-003-015	3276
46	TUSKEGEE INSTITUTE	French, B. O.	JSC	Sellers, J. P., Jr.	NAS 9-13844	1031
46	TUSKEGEE INSTITUTE	Brantley, L. W.	MSFC	Sellers, J. P., Jr.	NSG 8054	1037
46	UNIV ALA-TUSCALOOSA	Schutzenhofer, L. A.	MSFC	Doughty, J. O.	NAS 8-30624	1062
46	UNIV CALIF-BERKELEY	Marek, C. J.	LERC	Daily, J. W	NSG 3028	1429
46	UNIV CALIF-DAVIS	Pollack, J. B.	ARC	White, B. R.	NCA 2-180704	1450
46	UNIV CALIF-L ANGELES	Spera, E. A.	LERC	Friedman, P. P.	NSG 3082	1494
46	UNIV CALIF-L ANGELES	Burkhart, J. A.	LERC	Frederking, T. H.	NSG 3153	1496
46	UNIV OF CANTERBURY	Rice, E. J.	LERC	Eversman, W.	NSG 7192	3755
46	UNIV OF DELAWARE	Deaton, J. W	LARC	Pipes, R. B.	NSG 1304	1752
46	UNIV ILLINOIS-URBANA	Scribbe, H. W	LERC	Conry, T. F.	NSG 3098	2038
46	UNIV OF KANSAS	Forestieri, A. F.	LERC	Lenzen, K. H	NSG 3087	2145
46	UNIV OF KENTUCKY	McCutcheon, E. P.	ARC	Knapp, C. E.	NAS 2-8883	2158
46	UNIV OF KENTUCKY	Jackson, M. M.	JSC	Lafferty, J. F.	NAS 9-14392	2161
46	UNIV OF KENTUCKY	Haggard, J. B	LERC	Altenkirch, R. A.	NSG 3114	2170
46	UNIV MICH-ANN ARBOR	Ream, L. W.	LERC	Kroeger, R. A.	NAS 3-20051	2513

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
46	UNIV MICH-ANN ARBOR	Beam, L. W.	LERC	Bolt, J. A.	NSG 3161	2555
46	UNIV MO-ROLLA	Wedeven, L. D.	LERC	Medrow, R. A.	NSG 3113	2650
46	UNIV NEBRASKA-LINCLN	Johnston, J. D.	MSFC	Kersten, L.	NAS 8-31897	2672
46	UNIV TENNESSEE-KNOXV	Camp, D. W.	MSFC	Frost, W.	NAS 8-29584	3283
46	UNIV OF TOLEDO	Hady, W. F.	LERC	Keith, T. G.	NSG 3156	3097
46	UNIV OF VIRGINIA	Cunningham, R. E.	LERC	Gunter, E. J	NSG 3104	3608
46	UNIV OF VIRGINIA	Goetz, O. K.	MSFC	Gunter, E. J.	NAS 8-31951	3590
46	UNIV OF WASHINGTON	Valentine, H. H.	LERC	Martini, W. R.	NSG 3152	3677
46	VIRGINIA POLY INST	Hoffman, E. L.	LARC	Stinchcomb, W. W.	NSG 1254	3639
47	BROWN UNIVERSITY	Herbell, T. P.	LERC	Richman, M. H.	NSG 3118	3248
47	CARNEGIE-MELLON UNIV	Witzke, W. R.	LERC	Bhat, G. K.	NAS 3-20370	3143
47	CARNEGIE-MELLON UNIV	Klopp, W. D.	LERC	Low, J. R., Jr.	NGR 39-087-003	3144
47	CARNEGIE-MELLON UNIV	Klopp, W. D	LERC	Low, J. R., Jr.	NGR 39-087-047	3146
47	CASE WESTERN RESERVE	Glasgow, T. K.	LERC	Ebert, L. J.	NGL 36-003-094	3013
47	CASE WESTERN RESERVE	Gray, H. R.	LERC	Hehemann, R. H.	NGR 36-027-051	3015
47	CASE WESTERN RESERVE	Probst, H. B.	LERC	Mitchell, T. E.	NSG 3027	3020
47	CASE WESTERN RESERVE	Fortini, A.	LERC	Dybbs, A.	NSG 3040	3021
47	CASE WESTERN RESERVE	Hirschberg, M. H.	LERC	Manson, S. S.	NSG 7035	3036
47	CLEVELAND STATE UNIV	Ashbrook, R. L.	LERC	Yeh, H. C.	NSG 3155	3041
47	COLUMBIA UNIVERSITY	Glasgow, T. K.	LERC	Tien, J. K.	NSG 3050	2817
47	CORNELL UNIVERSITY	Nelson, H. G.	ARC	Johnson, H. H.	NSG 2078	2860
47	CORNELL UNIVERSITY	Outlaw, R. A	LARC	Merrill, R. P	NSG 1371	2859
47	CORNELL UNIVERSITY	Aron, P. R	LERC	Ruoff, A. L.	NGR 33-010-189	2855
47	DREXEL UNIVERSITY	Grimes, H. H.	LERC	Lawley, A.	NSG 3128	3154
47	GEORGE WASHINGTON U	Swann, R. T.	LARC	Liebowitz, H.	NSG 1155	1780
47	GEORGE WASHINGTON U	Poe, C. C., Jr.	LARC	Liebowitz, H.	NSG 1228	1783
47	GEORGE WASHINGTON U	Elber, W.	LARC	Liebowitz, H.	NSG 1289	1785
47	GEORGE WASHINGTON U	Roderick, G. L.	LARC	Yang, J. N.	NSG 1415	1788
47	GEORGE WASHINGTON U	Crews, J. H., Jr.	LARC	Liebowitz, H.	NSG 1449	1790
47	GEORGETOWN UNIV	Tenney, D. R	LARC	Liebowitz, H	NSG 1418	1795
47	GEORGIA INST OF TECH	Elber, W.	LARC	Hanagud, S. V	NSG 1352	1927
47	GEORGIA INST OF TECH	Eudy, R. G.	MSFC	Brown, J	H-23602B	1899
47	HOWARD UNIVERSITY	Schafer, C. F	MSFC	Ukanwa, A. O.	NAS 8-31605	1799
47	KENT STATE UNIV-KENT	Wintucky, E. G.	LERC	Johnson, D. L.	NSG 3159	3043
47	LEHIGH UNIVERSITY	Zill, L. P.	ARC	Wei, R. P.	NCA 2-380501	3164
47	LEHIGH UNIVERSITY	Ashbrook, R. L.	LERC	Kraft, R. W.	NGL 39-007-007	3166
47	MASS INST OF TECH	Fewell, L. L.	ARC	Tesoro, G.	NSG 2204	2457
47	MASS INST OF TECH	Harris, J. W.	JSC	Uhlmann, D. R	NGR 22-009-646	2417
47	MASS INST OF TECH	Byvik, C. E.	LARC	Gatos, H. C	NSG 1190	2436
47	MASS INST OF TECH	Outlaw, R. A.	LARC	Gatos, H. C	NSG 1337	2442
47	MASS INST OF TECH	Scheuermann, C. M.	LERC	Flemings, M. C.	NSG 3046	2461
47	MASS INST OF TECH	Vary, A.	LERC	Williams, J. H., Jr.	NSG 3064	2463
47	MASS INST OF TECH	Davidson, M. C.	MSFC	Gatos, H. C	NAS 8-30537	2384
47	MASS INST OF TECH	Chassay, R. P	MSFC	Uhlmann, D. R.	NAS 8-31350	2387
47	MASS INST OF TECH	Reeves, F. A.	MSFC	Uhlmann, D. R.	NAS 8-31552	2388
47	MISSISSIPPI STATE U	King, H. M.	MSFC	Hall, W. B.	NCA 8-107	2619
47	NO CAR A&T STATE U	Rhodes, M. D	LARC	Sharma, A. V.	NSG 1296	2984
47	NO CAROLINA STATE U	Long, E. R., Jr	LARC	Memory, J. D.	NSG 1423	3003
47	NORTHWESTERN UNIV	Ludwig, L. P.	LERC	Burton, R. A.	NSG 3039	1985
47	OHIO STATE UNIV	Gray, H. R.	LERC	Beck, F. H	NGL 36-008-051	3056
47	PENN STATE U-UNIV PK	Fripp, A. L.	LARC	White, W. B.	NSG 1387	3198
47	PENN STATE U-UNIV PK	Hirschberg, M. H.	LERC	Zamrik, S. Y	NGR 39-009-034	3190
47	PENN STATE U-UNIV PK	Sanders, W. A.	LERC	Bradt, R. C.	NSG 3016	3203
47	PURDUE UNIVERSITY	Roderick, G. L.	LARC	Sun, C. T.	NSG 1278	2069
47	RENSSELAER POLY-NY	Kuznetz, L. H.	JSC	Modest, M. F.	NAS 9-15109	2908
47	RENSSELAER POLY-NY	Grimes, H. H	LERC	Diefendorf, R. J.	NSG 3007	2916
47	RENSSELAER POLY-NY	Davidson, M. C.	MSFC	Wiedmann, H.	NAS 8-26146	2903
47	RENSSELAER POLY-NY	Reeves, F. A.	MSFC	Glicksman, M. E.	NAS 8-32425	2906

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
47	RENSSELAER POLY-NY	Salkind, M. J.	HQ-RW	Wiberly, S. E.	NGL 33-018-003	2909
47	STANFORD UNIVERSITY	Poppa, H. R.	ARC	Pound, G. M.	NCA 2-745711	1295
47	STANFORD UNIVERSITY	Rubesin, M. W.	ARC	Reynolds, W. C.	NGR 05-020-622	1325
47	STANFORD UNIVERSITY	Nachtsheim, P. R.	ARC	Bates, C. W.	NSG 2102	1347
47	STANFORD UNIVERSITY	Arnold, J. O.	ARC	Pound, G. M.	NSG 2251	1361
47	STANFORD UNIVERSITY	Outlaw, R. A.	LARC	Madix, R. J	NSG 1345	1336
47	STANFORD UNIVERSITY	Outlaw, R. A.	LARC	Madix, R. J	NSG 1381	1337
47	STANFORD UNIVERSITY	Whittenberger, J. D.	LERC	Sherby, O. D.	NGR 05-020-671	1329
47	STATE U NY-STONY BRK	Levine, S. R.	LERC	Seigle, L. L.	NGR 33-015-160	2946
47	SYRACUSE UNIVERSITY	Hirschberg, M. H.	LERC	Liu, H. W.	NGR 33-022-157	2966
47	TUSKEGEE INSTITUTE	Titran, R. H.	LERC	Ramirez, R. P	NSG 3154	1034
47	UNIV OF ARIZONA	Allen, R. E.	MSFC	Bier, M.	NAS 8-31537	1095
47	UNIV CALIF-BERKELEY	Nelson, H. G.	ARC	Finnie, I.	NCA 2-50706	1393
47	UNIV CALIF-BERKELEY	Outlaw, R. A	LARC	Peterson, E.	NSG 1347	1416
47	UNIV CALIF-BERKELEY	Stephens, J. R	LERC	Morris, J. W.	NGR 05-003-562	1414
47	UNIV CALIF-SAN DIEGO	Woollam, J. A.	LERC	Oesterreicher, H	NSG 3034	1553
47	UNIV CALIF-S BARBARA	Nelson, H. G.	ARC	Shanabarger, M. R.	NSG 2222	1580
47	UNIV OF CINCINNATI	Miner, R. V., Jr	LERC	Antolovich, S. D	NSG 3147	3085
47	UNIV OF IOWA	Randolph, L. P.	HQ-RR	Valanis, K. C.	NSG 7257	2114
47	UNIV OF KANSAS	Rummler, D. R.	LARC	Zerwekh, R. P	NSG 1269	2137
47	UNIV OF KANSAS	Howell, W. E.	LARC	Reese, C. D.	NSG 1281	2138
47	UNIV OF KENTUCKY	Brown, W. F., Jr	LERC	Conrad, H	NSG 3013	2169
47	UNIV OF KENTUCKY	Stephens, J. R.	LERC	Conrad, H	NSG 3125	2171
47	UNIV MARYLAND-COL PK	Stephens, J. R.	LERC	Drew, H. D	NSG 3001	2277
47	UNIV OF MIAMI	Lisagor, W. B.	LARC	Craig, H. L., Jr.	NSG 1283	1883
47	UNIV OF MIAMI	Shannon, J. L., Jr	LERC	Craig, H. L., Jr	NGR 10-007-118	1882
47	UNIV MICH-ANN ARBOR	Fichter, W. B	LARC	Felbeck, D. K	NGR 23-005-528	2541
47	UNIV MO-ROLLA	Geller, G.	MSFC	Summers, D. A.	NSG 8055	2651
47	UNIV NEBRASKA-LINCLN	Nelson, H. G	ARC	Johnson, D. L.	NGR 28-004-025	2675
47	UNIV TENNESSEE-KNOXV	Newman, J. C., Jr.	LARC	Wright, M. A	NSG 1163	3299
47	UNIV TENNESSEE-KNOXV	Schafer, C. F	MSFC	Collins, F.	NAS 8-32484	3290
47	UNIV TEXAS-EL PASO	Brandhorst, H. W., Jr.	LERC	Brient, S. J	NSG 3146	3481
47	UNIV OF TORONTO	Foye, R. L	LARC	Tennyson, R. C	NSG 7219	3743
47	UNIV OF WASHINGTON	Gangler, J. J	HQ-RW	Mueller, J. F	NGL 48-002-004	3663
47	UNIV OF WYOMING	Reeves, F. A	MSFC	Saunders, C	NAS 8-32486	3738
47	VANDERBILT UNIVERSTY	Brennecke, M. W	MSFC	Wert, J. J	NAS 8-31556	3310
47	VIRGINIA POLY INST	Nelson, H. G	ARC	Brinson, H. F	NSG 2038	3652
47	VIRGINIA POLY INST	Tenney, D. R	LARC	Houska, C. R	NSG 1214	3634
47	VIRGINIA POLY INST	Whitcomb, J. D	LARC	Reifsnider, K. L	NSG 1364	3647
47	VIRGINIA POLY INST	Tenney, D. R	LARC	Louthan, M. R., Jr	NSG 1382	3649
47	WASHINGTON ST UNIV	Yates, J. C., Jr	MSFC	Johnson, A. A	NAS 8-29725	3687
47	WAYNE STATE UNIV	Allen, R. F	MSFC	Brown, R. K	NAS 8-29823	2567
47	YALE UNIVERSITY	Fryburg, G. C	LERC	Rosner, D. E	NSG 3107	1746
47	ORLGON GRADUATE CTR	Morris, J. F	LERC	Swanson, L. S	NSG 3054	3120
49	AUBURN UNIV-AUBURN	Decker, A. J	LERC	Ranson, W. F	NSG 3109	1027
49	AUBURN UNIV-AUBURN	Routh, D. F	MSFC	Cook, K. B	NAS 8-32633	1019
49	AUBURN UNIV-AUBURN	Routh, D. F	MSFC	Kerns, D. V	NAS 8-32634	1020
49	AUBURN UNIV-AUBURN	Daniel, C. C	MSFC	Flood, C. A., Jr	NSG 8047	1028
49	AUBURN UNIV-AUBURN	Carter, C. H	HQ-P	Vachon, R. I	NGT 01-003-044	1025
49	BALL STATE UNIVERSTY	Hastings, I. J	MSFC	Cosby, R. M	NCA 8-121	2043
49	BALL STATE UNIVERSTY	Hastings, I. J	MSFC	Cosby, R. M	NCA 8-127	2044
49	BALL STATE UNIVERSTY	Hastings, I. J	MSFC	Cosby, R. M	NCA 8-129	2045
49	CASE WESTERN RESERVE	LaBus, T. J	LERC	Ostrach, S	NSG 3053	3022
49	CASE WESTERN RESERVE	Banks, B. A.	LERC	Gibbons, D. F	NSG 3126	3030
49	CASE WESTERN RESERVE	Carter, C. H	HQ-P	Prahl, J. M	NGT 36-027-011	3018
49	CITY COLLEGE OF N.Y.	Ernst, H. M	HQ-EE	Schilling, D. L	NSG 7144	2790
49	COLORADO STATE UNIV	Fichtl, G. H	MSFC	Winn, C. B	NAS 8-31347	1637
49	COLUMBIA UNIVERSITY	Cawthorn, J. M	LARC	Galanter, E	NAS 1-14745	2796

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
49	COLUMBIA UNIVERSITY	Powell, C. A.	LARC	Borsky, P. N.	NSG 1164	2816
49	CORNELL UNIVERSITY	Tarver, P	HQ-SL	Wehe, R. L.	NASW 2750	2837
49	GEORGE MASON UNIV	Cox, J.	LARC	Trehan, A.	NCA 1-6	3525
49	GEORGE WASHINGTON U	Morakis, J. C.	GSFC	Helgert, H J	NSG 5109	1792
49	GEORGE WASHINGTON U	Duberg, J. E.	LARC	Liebowitz, H.	NGL 09-010-053	1772
49	GEORGIA INST OF TECH	Keene, L. F.	KSC	Michelson, R. C.	NAS10-9097	1921
49	GEORGIA INST OF TECH	Newman, J. C., Jr.	LARC	Atluri, S. N	NSG 1351	1926
49	GEORGIA INST OF TECH	Stevenson, S.	LERC	Camp, A. A.	NAS 3-19700	1904
49	GEORGIA INST OF TECH	Smith, O. E.	MSFC	Justus, C. G.	NAS 8-30657	1914
49	HAMPTON INSTITUTE	Anderson, A. F.	LARC	Darden, G. C.	NCA 1-1	3528
49	HARVARD UNIVERSITY	Rosendhal, J. D.	HQ-SA	Noyes, R. W.	NASW 2938	2333
49	HOWARD UNIVERSITY	Hui, P. S.	GSFC	Choudhury, A. K.	NAS 5-24251	1798
49	HOWARD UNIVERSITY	Mundy, J. R.	GSFC	Cox, E. L.	NCA 5-14	1800
49	HOWARD UNIVERSITY	Russell, R. A.	LARC	Bainum, P. M.	NSG 1414	1809
49	HOWARD UNIVERSITY	Pohly, J. G.	HQ-P	Cox, E. L.	NGT 09-011-058	1805
49	ILL INST OF TECH	Braun, W. H.	LERC	Weinstein, H.	NSG 3141	1979
49	IOWA STATE UNIV	Pollack, J. B	ARC	Iversen, J. D.	NCA 2-340701	2089
49	IOWA STATE UNIV	Kutler, P.	ARC	Anderson, D. A.	NCA 2-340704	2091
49	IOWA STATE UNIV	Kutler, P.	ARC	Pierson, B. L.	NCA 2-340705	2092
49	IOWA STATE UNIV	Fralich, R. W.	LARC	McDaniel, T. J.	NSG 1372	2095
49	JACKSON STATE UNIV	Anderson, W. J.	LERC	Chu, C. S.	NSG 3004	2610
49	LINCOLN UNIV-PA	Pohly, J. G.	HQ-P	Williams, W., Jr	NGT 39-108-750	3174
49	MASS INST OF TECH	Doolin, B. F.	ARC	Athans, M	NGL 22-009-124	2397
49	MASS INST OF TECH	Stewart, J. D	ARC	Young, L. R	NSG 2230	2458
49	MASS INST OF TECH	Chamis, C. C	LERC	McGarry, F. G	NSG 3044	2460
49	MASS INST OF TECH	Gevarter, W. B.	HQ-RE	Weinstein, M.	NSG 7227	2484
49	MICHIGAN STATE UNIV	Orange, T. W.	LERC	Sharp, W. N., Jr	NSG 3101	2507
49	MORGAN STATE UNIV	Friedman, D. S.	GSFC	Collagan, R. B.	NAS 5-23558	2229
49	NEW MEX ST U-LAS CR	Bissell, E. E.	GSFC	Lawrence, H.	NAS 5-24241	2745
49	NEW MEX ST U-LAS CR	Pohly, J. G.	HQ-P	Zimmerman, R M	NGT 32-003-750	2757
49	NEW YORK UNIVERSITY	LaBus, T. L	LERC	Keller, J. B	NSG 3059	2883
49	NO CAR A&T STATE U	Pohly, J G	HQ-P	Chandra, S.	NGT 34-012-750	2983
49	OLD DOMINION UNIV	Martin, D. J.	LARC	Ousterhout, D. S.	NAS 1-11707	3534
49	OLD DOMINION UNIV	Keckler, C. R.	LARC	Roberts, A S., Jr.	NSG 1241	3556
49	OLD DOMINION UNIV	Kruszewski, E. T.	LARC	Hyer, M. W.	NSG 1279	3561
49	OLD DOMINION UNIV	Wieting, A. R.	LARC	Thornton, E. A.	NSG 1321	3565
49	OLD DOMINION UNIV	Carter, C. H.	HQ-P	Gogha, G L.	NGT 47-003-023	3538
49	OLD DOMINION UNIV	Carter, C. H.	HQ-P	Gogha, G L	NGT 47-003-029	3539
49	PENN STATE U-UNIV PK	Berkopec, F D.	LERC	Robinson, J W	NSG 3097	3206
49	PRAIRIE VIEW A&M U	Pohly, J G.	HQ-P	Greaux, A. E	NGT 44-033-750	3336
49	PRINCETON UNIVERSITY	Kelsall, T N.	GSFC	Lowrance, J. L.	NSG 5063	2722
49	RENSSELAER POLY-NY	Gevarter, W. B.	HQ-RE	Yerazunis, S W.	NSG 7369	2920
49	RENSSELAER POLY-NY	Tarver, P.	HQ-SL	Yerazunis, S. W.	NGL 33-018-091	2911
49	SAN JOSE STATE UNIV	Ricciuello, S. R.	ARC	Myronuk, D. J.	NSG 2165	1253
49	SAN JOSE STATE UNIV	Mansfield, J. A.	ARC	Holmstrom, F.	NSG 2224	1261
49	SAN JOSE STATE UNIV	Mansfield, J. A.	ARC	Anderson, R.	NSG 2235	1262
49	SO UNIV-BATON ROUGE	Pohly, J. G	HQ-P	Burrell, M. Q	NGT 19-005-750	2188
49	STANFORD UNIVERSITY	Randle, R. J.	ARC	Thompson, D. A	NCA 2-745710	1294
49	STANFORD UNIVERSITY	Erzberger, H.	ARC	Bryson, A. E., Jr	NGL 05-020-007	1303
49	STANFORD UNIVERSITY	Jones, J. L.	ARC	Thompson, D. A.	NGR 05-020-345	1318
49	STANFORD UNIVERSITY	Billingham, J.	ARC	Peterson, A. M	NSG 2121	1348
49	STANFORD UNIVERSITY	Lorell, K. R.	ARC	Powell, J. D.	NSG 2246	1358
49	STANFORD UNIVERSITY	Carter, C. H	HQ-P	Adams, J L.	NGT 05-020-409	1332
49	STANFORD UNIVERSITY	Carter, C. H.	HQ-P	Bershader, D	NGT 05-020-412	1333
49	TENNESSEE STATE UNIV	Pohly, J G.	HQ-P	Malkani, M J.	NGT 43-014-750	3270
49	TEXAS A&I UNIVERSITY	Pohly, J. G	HQ-P	Franke, E A	NGT 44-073-750	3360
49	TUSKEGEE INSTITUTE	Pohly, J. G.	HQ-P	Dybczak, Z W	NGT 01-005-750	1033
49	UNIV ALA-HUNTSVILLE	Carter, C. H	HQ-P	Head, R R.	NGT 01-008-021	1057

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
49	UNIV ALA-TUSCALOOSA	Morton, R. R.	MSFC	April, G. C.	NAS 8-29100	1059
49	UNIV ALA-TUSCALOOSA	Carter, C. H.	HQ-P	Barfield, B. F.	NGT 01-002-080	1066
49	UNIV ALA-TUSCALOOSA	Carter, C. H.	HQ-P	Lueg, R. E.	NGT 01-002-095	1067
49	UNIV CALIF-BERKELEY	Chang, A. T.	GSFC	Angelakos, D. J.	NSG 5093	1431
49	UNIV CALIF-SAN DIEGO	Schaefer, D. H.	GSFC	Lee, S. H.	NGR 05-009-264	1551
49	UNIV OF CINCINNATI	Mikulas, M. M., Jr.	LARC	Nayfeh, A. H.	NSG 1185	3077
49	UNIV OF FLORIDA	Heath, D. F.	GSFC	Green, A. E.	NAS 5-22908	1851
49	UNIV HOUSTON-HOUSTON	Kyle, H. C.	JSC	Hayre, H. S.	NAS 9-11845	3401
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-P	Huang, C. J.	NGT 44-005-114	3414
49	UNIV HOUSTON-HOUSTON	Carter, C. H.	HQ-P	Huang, C. J.	NGT 44-005-115	3415
49	UNIV OF KANSAS	Saltzman, E. J	DFRC	Muirhead, V. U.	NSG 4009	2149
49	UNIV MARYLAND-COL PK	Degnan, J. J.	GSFC	Hochuli, U. E.	NSG 5042	2280
49	UNIV MARYLAND-COL PK	McGarry, F. E.	GSFC	Basili, V. R.	NSG 5123	2289
49	UNIV MARYLAND-COL PK	Carter, C. H.	HQ-P	Emad, F. P.	NGT 21-002-254	2271
49	U MINN-MNPLS-ST PAUL	Corrigan, J. P.	GSFC	Winckler, J. R.	NAS 5-11687	2577
49	UNIV NEBRASKA-LINCLN	Szajna, E. F.	GSFC	Carlson, M.	NAS 5-20814	2670
49	UNIV OF NEW MEXICO	Hyland, R. I.	LERC	Burch, E.	NAS 3-19434	2762
49	UNIV OF NEW MEXICO	Pohly, J. G.	HQ-P	Theye, L. A.	NGT 32-004-750	2774
49	UNIV OF NEW MEXICO	Pohly, J. G.	HQ-P	Etter, D. M.	NGT 32-004-770	2775
49	UNIV OKLAHOMA-NORMAN	Pohly, J. G.	HQ-P	Thomas, G.	NGT 37-003-760	3117
49	UNIV OF PERU	Christie, C. J.	GSFC	Unavailable	NASW 7	3756
49	UNIV OF RHODE ISLAND	Pritchard, E. B.	LARC	Spaulding, M. L.	NSG 1008	3249
49	UNIV OF ROME	Goozh, P. L.	HQ-MV	Unavailable	NASW 1761	3752
49	UNIV OF SANTA CLARA	Doolin, B. F.	ARC	Siljak, D. D.	NGR 05-017-010	1606
49	UNIV TEXAS-AUSTIN	Richard, R. R.	JSC	Hartwig, W. H.	NAS 9-14491	3429
49	UNIV TEXAS-AUSTIN	Pels, G. F	JSC	Tucker, A. J.	NAS 9-15217	3433
49	UNIV TEXAS-EL PASO	Pohly, J. G.	HQ-P	Guard, R. W.	NGT 44-085-750	3479
49	UNIV OF TOLEDO	LaBus, T. L.	LERC	DeWitt, K. J.	NSG 3121	3095
49	UNIV OF UTAH	Card, M. F.	LARC	Resch, R. D.	NSG 1313	3504
49	UNIV OF VIRGINIA	Lamb, G. M.	GSFC	Mattauch, R. J.	NAS 5-24218	3589
49	UNIV OF VIRGINIA	Conner, D. W.	LARC	Kuhlthau, A. R.	NAS 1-14908	3586
49	UNIV OF VIRGINIA	Snyder, W. J.	LARC	Jacobson, I. D.	NSG 1274	3600
49	UNIV OF VIRGINIA	Hueschen, R. M.	LARC	Cook, G. E.	NSG 1388	3602
49	UNIV OF VIRGINIA	Tapscott, R. J.	LARC	Jacobson, I. D.	NSG 1399	3603
49	UNIV OF VIRGINIA	Wilkins, J. R.	LARC	Stoner, G. F.	NSG 1406	3605
49	VANDERBILT UNIVERSTY	Caruso, S. V.	MSFC	Kinser, D. L.	NAS 8-32437	3311
49	VIRGINIA POLY INST	Martin, D. J.	LARC	Robertson, R. M.	NAS 1-13175	3615
49	VIRGINIA POLY INST	Davis, J. G., Jr.	LARC	Herakovich, C. T.	NGR 47-004-129	3626
49	VIRGINIA POLY INST	Wichorek, G. R.	LARC	Henneke, E. G.	NSG 1238	3636
49	VIRGINIA POLY INST	Hoffman, E. L	LARC	Herakovich, C. T.	NSG 1250	3638
49	VIRGINIA POLY INST	Miserentino, R.	LARC	Hallauer, W. L., Jr.	NSG 1276	3643
49	WEST VIRGINIA UNIV	Phillips, B. R.	LERC	Wen, C. Y.	NAS 3-19725	3691
51	ALABAMA A&M UNIV	Downs, S. W., Jr.	MSFC	Montgomery, O. L.	NGR 01-001-023	1001
51	ALABAMA A&M UNIV	Allen, R. E.	MSFC	Savage, J.	NSG 8042	1006
51	ALABAMA A&M UNIV	Snyder, R. S.	MSFC	Gibson, W. L	NSG 8051	1007
51	ALCORN STATE UNIV	Kent, M. I.	MSFC	Latif, A.	NSG 8036	2609
51	AMHERST COLLEGE	Young, R. S.	HQ-SB	Leadbetter, E. R	NSG 7325	2314
51	AUBURN UNIV-AUBURN	Downs, S. W., Jr.	MSFC	Hagler, T. B.	NAS 8-29856	1014
51	BAYLOR COL OF MED	Homick, J. L.	JSC	Igarashi, M.	NAS 9-14546	3322
51	BROOKLYN COLLEGE	Miquel, J.	ARC	Cottrell, S. F.	NCA 2-75602	2780
51	CALIF INST OF TECH	Williams, T. S., Jr.	LARC	Horowitz, N. H.	NAS 1-12311	1158
51	CALIF INST OF TECH	Young, R. S.	HQ-SB	Horowitz, N. H.	NGR 05-002-121	1183
51	CAL STATE U-L ANGLES	Hochstein, L. I.	ARC	Andreoli, A. J.	NSG 2199	1218
51	CENTRAL ST UNIV-OHIO	Fordyce, J. S.	LERC	Craft, T. J., Sr.	NGR 36-033-003	3037
51	COLORADO STATE UNIV	Holton, E. M	ARC	Jordan, J. P.	NGR 06-002-075	1643
51	COLORADO STATE UNIV	Holton, E. M.	ARC	ordan, J. P.	NSG 2232	1651
51	CORNELL UNIVERSITY	Young, R. S.	HQ-SB	MacDonald, R. E.	NSG 7235	2867
51	EMORY UNIVERSITY	Holton, E. M	ARC	Popovic, V. P.	NGL 11-001-009	1896

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
51	EMORY UNIVERSITY	Sandler, H.	ARC	Bourne, G. H.	NGR 11-001-016	1897
51	FLORIDA STATE UNIV	Young, R. S.	HQ-SB	Friedmann, E. I.	NSG 7337	1844
51	GEORGIA INST OF TECH	Williams, T. S., Jr.	LARC	Hubbard, J. S.	NAS 1-13422	1900
51	GEORGIA INST OF TECH	Young, R. S.	HQ-SB	Hubbard, J. S.	NSG 7069	1934
51	HARDIN-SIMMONS UNIV	Young, R. S.	HQ-SB	Foster, T. L.	NGR 44-095-001	3327
51	HARVARD UNIVERSITY	Ellis, S.	ARC	Goldberg, A. L.	NSG 2144	2346
51	HARVARD UNIVERSITY	Huffstetler, W. J.	JSC	Sulzman, F. M.	NAS 9-15326	2332
51	HOWARD UNIVERSITY	Piccolo, G. L.	GSFC	Okrend, H. H	NSG 5104	1613
51	INDIANA U-INDIANAPLS	Haymaker, W. E.	ARC	Zeman, W.	NAS 2-7927	2054
51	LEHIGH UNIVERSITY	Scott, F. E.	MSFC	VanDerHoff, J. W.	NAS 8-32124	3160
51	LEHIGH UNIVERSITY	Kornfield, D. M.	MSFC	VanDerHoff, J. W	NAS 8-32406	3162
51	MASS INST OF TECH	Daunton, N. G.	ARC	Bizzi, E.	NGR 22-009-798	2428
51	MASS INST OF TECH	Daunton, N. G.	ARC	Nauta, W. J.	NGR 22-009-826	2432
51	MASS INST OF TECH	Williams, T. S., Jr.	LARC	Rich, A.	NAS 1-9691	2362
51	MASS INST OF TECH	Young, R. S.	HQ-SB	Biemann, K	NGR 22-009-005	2406
51	MISS VALLEY ST UNIV	Wolverton, B. C.	MSFC	Sethi, S. L	NSG 8009	2630
51	NORTH GEORGIA COL	Downs, S. W., Jr.	MSFC	Biesbrock, J. A	NAS 8-30619	1947
51	OHIO STATE UNIV	Mehler, W. R.	ARC	Lim, D. J.	NSG 222	3066
51	OHIO UNIVERSITY	Halstead, T. W.	HQ-SB	Jaffe, M. J.	NSG 7352	3072
51	OREGON STATE UNIV	Nachtwey, D. S.	JSC	VanDyke, H.	NAS 9-14860	3122
51	PENN STATE U-UNIV PK	Young, R. S.	HQ-SB	Casida, L. E., Jr.	NGR 39-009-160	3192
51	PRINCETON UNIVERSITY	Reeves, F. A.	MSFC	Saville, D. A.	NAS 8-32614	2705
51	PRINCETON UNIVERSITY	Halstead, T. W.	HQ-SB	Jacobs, W. P	NSG 7280	2726
51	PURDUE UNIVERSITY	Halstead, T. W.	HQ-SB	Mitchell, C. A.	NSG 7278	2082
51	RENSSELAER POLY-NY	Young, R. S.	HQ-SB	Wedler, F. C.	NSG 7065	2917
51	RENSSELAER POLY-NY	Young, R. S.	HQ-SB	Pope, D. H	NSG 7345	2919
51	SAN JOSE STATE UNIV	Klein, H. P.	ARC	Neptune, J. A	NSG 2090	1249
51	SAN JOSE STATE UNIV	Dalton, B. P.	ARC	Ballard, R. W.	NSG 2213	1258
51	SOUTHEASTN OKLA ST U	Bostwick, L. G	KSC	Robinson, J. L.	NSG 802	3112
51	SO ILL UNIV-CARBONDL	Young, R. S.	HQ-SB	Yopp, J. H.	NGR 14-008-026	1990
51	STANFORD UNIVERSITY	Miquel, J.	ARC	Bensch, K. G	NAS 2-6706	1270
51	STANFORD UNIVERSITY	Danellis, J. V.	ARC	Barchas, J. D.	NCA 2-745706	1290
51	STANFORD UNIVERSITY	Mandel, A. D.	ARC	Merigan, T.	NCA 2-745707	1291
51	STANFORD UNIVERSITY	Hochstein, L. I.	ARC	Matin, A.	NCA 2-745719	1301
51	STANFORD UNIVERSITY	Williams, T. S., Jr.	LARC	Lederberg, J.	NAS 1-9692	1268
51	STANFORD UNIVERSITY	Young, R. S.	HQ-SB	Lederberg, J.	NGR 05-020-004	1316
51	STATE UNIV NY-ALBANY	Rummel, J. A.	JSC	Farhi, L. E.	NSG 9028	2934
51	STATE U NY-STONY BRK	Tremor, J. W.	ARC	Steward, F. C	NAS 2-8986	2940
51	STATE U NY-STONY BRK	Halstead, T. W.	HQ-SB	Krikorian, A. D.	NSG 7270	2959
51	TEMPLE UNIVERSITY	Nachtwey, D. S.	JSC	Urback, F.	NAS 9-14979	3215
51	TEXAS A&M UNIVERSITY	Hoffman, R. A.	JSC	Kleerekoper, H.	NAS 9-15175	3380
51	TEXAS TECH UNIV	Holton, E. M.	ARC	Kenny, A. D.	NSG 2137	3397
51	TULANE UNIVERSITY	MacElroy, R. D.	ARC	Johnson, E. J.	NCA 2-800701	2195
51	TUSKEGEE INSTITUTE	Philpott, D. E.	ARC	Sapp, W. J.	NCA 2-810701	1032
51	UNIV OF ARIZONA	Snyder, R. S.	MSFC	Bartels, P. H	NAS 8-31948	1096
51	UNIV CALIF-BERKELEY	Lanyi, J. K.	ARC	Packer, L.	NCA 2-50607	1388
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-SB	Pace, N.	NSG 7262	1440
51	UNIV CALIF-BERKELEY	Halstead, T. W.	HQ-SB	Pace, N.	NSG 7336	1442
51	UNIV CALIF-DAVIS	Kennard, J. M.	ARC	Gary, N. E.	NAS 2-9539	1443
51	UNIV CALIF-DAVIS	Oyama, J.	ARC	Evans, J. W.	NCA 2-180701	1448
51	UNIV CALIF-DAVIS	Oyama, J.	ARC	Smith, A. H.	NGL 05-010-008	1451
51	UNIV CALIF-DAVIS	Oyama, J.	ARC	Horowitz, B. A.	NSG 2234	1452
51	UNIV CALIF-L ANGELES	Ellis, S.	ARC	Parlow, A	NCA 2-390601	1170
51	UNIV CALIF-L ANGELES	Grindeland, R. E	ARC	Parlow, A.	NCA 2-390701	1471
51	UNIV CALIF-L ANGELES	Daunton, N. G	ARC	Markham, C. H	NGR 05-007-418	1491
51	UNIV CALIF-SAN DIEGO	Young, R. S	HQ-SB	Yayanos, A. A.	NGR 05-009-213	1545
51	UNIV CALIF-SAN FRAN	Danellis, J. V.	ARC	Dallman, M. S.	NCA 2-665602	1566
51	UNIV CALIF-SAN FRAN	Callahan, P. X.	ARC	Asling, C. W.	NCA 2-665701	1567

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
51	UNIV CALIF-SAN FRAN	Mehler, W. R	ARC	Rapisardi, S. C.	NCA 2-665706	1569
51	UNIV CALIF-SAN FRAN	Young, R. S.	HQ-SB	Stoeckenius, W.	NSG 7151	1573
51	UNIV CALIF-S BARBARA	Greenleaf, J. E.	ARC	Rochelle, R. H.	NCA 2-680601	1575
51	UNIV CALIF-S BARBARA	Lanyi, J. K.	ARC	Gibor, A.	NCA 2-680702	1577
51	UNIV OF CHICAGO	Daunton, N. G.	ARC	Goldberg, J. M.	NGR 14-001-225	2008
51	UNIV OF CHICAGO	Larson, C. A.	HQ-SB	Moran, H. F	NSG 7303	2016
51	UNIV OF FLORIDA	Nachtwey, D. S.	JSC	Green, A. E.	NAS 9-15114	1853
51	UNIV OF HAWAII-MANOA	Young, R. S.	HQ-SB	Siegel, S. M	NGL 12-001-042	1961
51	UNIV HOUSTON-HOUSTON	Ginoza, H. S.	ARC	Allred, J. C.	NAS 2-9072	3399
51	UNIV HOUSTON-HOUSTON	Graves, R. C.	JSC	Henney, H. R., Jr.	NAS 9-14857	3405
51	UNIV HOUSTON-HOUSTON	Halstead, T. W.	HQ-SB	Hendrix, D. L.	NSG 7300	3420
51	UNIV HOUSTON-HOUSTON	Halstead, T. W	HQ-SB	Coules, J. R	NSG 9042	3421
51	UNIV ILLINOIS-URBANA	Williams, B. A	ARC	Heath, J. E.	NSG 2099	2034
51	UNIV OF KENTUCKY	Sharp, J. C.	ARC	Smith, S. D.	NSG 2187	2168
51	UNIV OF LOUISVILLE	Mehler, W. R.	ARC	Fuller, P. M.	NSG 2067	2177
51	UNIV OF LOUISVILLE	Hoffman, R. A	JSC	Keefe, J. R.	NAS 9-14632	2174
51	UNIV MARYLAND-COL PK	Deal, P.	ARC	Ponnamperuma, C. A.	NCA 2-420703	2246
51	UNIV MARYLAND-COL PK	Scott, F. E.	MSFC	Colwell, R. R.	NAS 8-32148	2245
51	UNIV MICH-ANN ARBOR	Mehler, W. R	ARC	Quartron, G. C.	NAS 2-9466	2512
51	UNIV MICH-ANN ARBOR	Hoffman, R. A.	JSC	Ross, M. D.	NSG 9047	2566
51	U MINN-MNPLS-ST PAUL	Young, R. S.	HQ-SB	Straub, C. P.	NGL 24-005-160	2586
51	UNIV MO-COLUMBIA	Holton, E. M.	ARC	Musacchia, X. J	NGL 26-004-021	2642
51	UNIV MO-COLUMBIA	Holton, E. M	ARC	Musacchia, X. J.	NSG 2191	2643
51	UNIV ORGEON-HLTH CTR	Allen, R. E.	MSFC	Knox, R. J	NAS 8-30887	3136
51	UNIV ORGEON-HLTH CTR	Nerren, B. H.	MSFC	Brooks, D. E.	NAS 8-31899	3138
51	UNIV ORGEON-HLTH CTR	Reeves, E. A.	MSFC	Brooks, D. E.	NAS 8-32353	3140
51	UNIV ORGEON-HLTH CTR	Reeves, E. A	MSFC	Seaman, G. V	NAS 8-32609	3141
51	UNIV OF PENNSYLVANIA	Horrigan, D. J.	JSC	Lambertson, C. J	NSG 9011	3221
51	UNIV OF PENNSYLVANIA	Halstead, T. W.	HQ-SB	Brown, A. H	NGR 39-010-149	3219
51	UNIV OF ROCHESTER	Young, R. S.	HQ-SB	Hempfling, W. P.	NGR 33-019-002	2969
51	UNIV OF ROCHESTER	Young, R. S	HQ-SB	Vishniac, H. S.	NSG 7366	2972
51	UNIV SAN FRANCISCO	Lawless, J. G	ARC	Furst, A. L.	NAS 2-9440	1587
51	UNIV SAN FRANCISCO	Miquel, J.	ARC	Benton, E. V	NSG 2063	1594
51	UNIV SAN FRANCISCO	Bailey, J. V	JSC	Benton, E. V.	NAS 9-12466	1590
51	UNIV OF SANTA CLARA	Lawless, J. G	ARC	Sweeney, M. A	NCA 2-685706	1598
51	UNIV OF SANTA CLARA	Grindeland, R. L.	ARC	Fast, I	NCA 2-685709	1601
51	UNIV OF SANTA CLARA	Williams, B. A	ARC	DeHisco, P. N	NCA 2-685714	1605
51	UNIV SO CAROLINA-COL	Geib, D. S.	HQ-SB	Rohifing, D. L.	NSG 7096	3258
51	UNIV SO MISSISSIPPI	Stocks, P.	NSTL	Wolverton, V. C	NAS13-23	2633
51	UNIV SO MISSISSIPPI	Wolverton, B. C.	NSTL	Stocks, P	NAS13-54	2634
51	U TEX PUB HLTH-HUS	Rambout, P. C.	JSC	Booth, F	NAS 9-15388	3486
51	UNIV OF UTAH	Johnson, R. D.	ARC	Ghandi, O. M.	NAS 2-9555	3496
51	UNIV OF VIRGINIA	Holton, E. M.	ARC	Pitts, G. C	NSG 2225	3607
51	UNIV OF WASHINGTON	Johnson, R. D.	ARC	Guy, A. W	NAS 2-9536	3658
51	UNIV WISC-MADISON	Holton, E. M	ARC	Deluca, H	NCA 2-865701	3711
51	UTAH STATE UNIV	Nachtwey, D. S	JSC	Caldwell, M. M.	NAS 9-14871	3508
51	VANDERBILT UNIVERSTY	Hoffman, R. A	JSC	Pratt, L. H	NAS 9-15092	3312
51	VIRGINIA COMNWLTH U	Wilkins, J. R.	LARC	Dalton, H. P	NGL 47-002-020	3612
51	VIRGINIA COMNWLTH U	Saunders, J. F	HQ-SB	Ham, W. T	NGL 47-002-005	3611
51	WORCESTER POLY INST	Young, R. S	HQ-SB	Daniell, J. F	NSG 7154	2503
51	XAVIER UNIV-LA	Winget, C. M	ARC	Ashman, P. U.	NGR 19-007-004	2198
51	YALE UNIVERSITY	Young, R. S	HQ-SB	Morowitz, H. J	NGR 07-004-009	1742
51	YALE UNIVERSITY	Halstead, T. W	HQ-SB	Galston, A. W.	NSG 7290	1747
52	BAYLOR COL OF MED	Leach, C. S.	JSC	Campbell, B. O	NAS 9-10537	3317
52	BAYLOR COL OF MED	Kimzey, S. L.	JSC	Criswell, B. S	NAS 9-14322	3320
52	BAYLOR COL OF MED	Kaplan, H. L	JSC	Duncan, W. C	NAS 9-14407	3321
52	BAYLOR COL OF MED	Kimzey, S. L	JSC	Johnson, P. C	NAS 9-14662	3324
52	BOSTON UNIVERSITY	Arnoldi, L. B	HQ-QG	Hershberg, P. I	NSG 7063	2320

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
52	HARVARD UNIVERSITY	Young, D. R.	ARC	Tashjian, A. H., Jr.	NGR 22-007-256	2341
52	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Chang, P.	NAS 5-23799	1796
52	HOWARD UNIVERSITY	Friedman, D. S.	GSFC	Fischmann, E. J.	NSG 5127	1814
52	LINCOLN UNIV-PA	Alterescu, S.	GSFC	Frankowsky, J. W.	NSG 5008	3175
52	MEHARRY MEDICAL COL	Alterescu, S.	GSFC	Anderson, R. S.	NAS 5-23801	3266
52	MOREHOUSE COLLEGE	Alterescu, S.	GSFC	Norris, T. E.	NAS 5-23571	1936
52	OHIO STATE UNIV	Carter, C. H.	HQ-P	Keller, M. D.	NGT 36-008-007	3060
52	STANFORD UNIVERSITY	McCutcheon, E. P.	ARC	Harrison, D. C.	NGL 05-020-305	1311
52	STANFORD UNIVERSITY	Danellis, J. V.	ARC	Luetscher, J. A.	NGR 05-020-456	1322
52	STANFORD UNIVERSITY	Sandler, H	ARC	Harrison, D. C.	NGT 05-020-634	1326
52	STANFORD UNIVERSITY	Sandler, H.	ARC	Popp, R. L.	NSG 2020	1341
52	STANFORD UNIVERSITY	Sandler, H.	ARC	Harrison, D. C.	NSG 2132	1349
52	STANFORD UNIVERSITY	Dolkas, C. B.	ARC	Olefsky, J. M.	NSG 2141	1350
52	UNIV CALIF-IRVINE	Mandel, A. D.	ARC	Tilles, J. G.	NGR 05-041-012	1456
52	UNIV CALIF-SAN DIEGO	Sandler, H.	ARC	Baily, N. A.	NGR 05-009-257	1549
52	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Zlatkis, A.	NAS 9-14629	3404
52	UNIV OF MIAMI	Leach, C. S.	JSC	Epstein, M.	NGR 10-007-097	1881
52	UNIV TENNESSEE-KNOXV	Kimzey, S. L.	JSC	Chen, J. P.	NAS 9-15164	3293
52	UNIV TEXAS-GALVESTON	McCutcheon, E. P.	ARC	Stone, H. L.	NGR 44-088-002	3483
52	U TEX HEALTH CTR-DAL	Hoffler, G. W.	JSC	Blomquist, C. G.	NSG 9026	3484
52	UNIV WISC-MADISON	Young, D. R.	ARC	Cameron, J. R.	NGR 50-002-051	3715
52	UNIV WISC-MADISON	Mandel, A. D	ARC	Balish, E.	NGR 50-002-191	3718
52	UNIV WISC-MADISON	Mandel, A. D	ARC	Dick, E. C	NSG 2002	3721
52	UNIV WISC-MADISON	Mandel, A. D	ARC	Dick, E. C	NSG 2104	3722
52	VIRGINIA POLY INST	Day, J. L.	JSC	Rivers, D. B.	NAS 9-15287	3621
52	YALE UNIVERSITY	Mandel, A. D.	ARC	Evans, A. S.	NSG 2185	1745
53	BAYLOR COL OF MED	Hoffman, R. A	JSC	Johnson, P. C.	NAS 9-13737	3319
53	BAYLOR COL OF MED	Rummel, J. A.	JSC	Cardus, D.	NAS 9-14661	3323
53	BAYLOR COL OF MED	Hoffler, G. W	JSC	Alexander, J. K.	NAS 9-15046	3326
53	CASE WESTERN RESERVE	Weigand, A. J	LERC	Gibbons, D. F.	NSG 3151	3034
53	COLUMBIA UNIVERSITY	Rambaut, P. C.	JSC	Bassett, C. A.	NAS 9-14931	2808
53	GEORGETOWN UNIV	Danellis, J. V.	ARC	Kellar, K. J.	NCA 2-258701	1794
53	HARDING COLLEGE	Rummel, J. A.	JSC	Olree, H. D	NAS 9-14921	3148
53	HARVARD UNIVERSITY	Leach, C. S.	JSC	Moore-Ede, M. C.	NSG 9054	2969
53	HOWARD UNIVERSITY	Sandler, H.	ARC	Cothran, L. N.	NGL 09-011-017	1832
53	HOWARD UNIVERSITY	Alterescu, S.	GSFC	Chang, P	NSG 5016	1810
53	HOWARD UNIVERSITY	Alterescu, S	GSFC	Deloatch, L. M.	NSG 5081	1812
53	JOHNS HOPKINS UNIV	Danellis, J. V.	ARC	Garza, D. S.	NCA 2-355701	2215
53	JOHNS HOPKINS UNIV	Friedman, D. S	GSFC	Long, D	NAS 5-23732	2212
53	LINCOLN U-PA	Alterescu, S.	GSFC	Frankowsky, J. W	NAS 5-23800	3175
53	MASS INST OF TECH	Winget, C. M.	ARC	Wurtman, R. J.	NGR 22-009-627	2416
53	MASS INST OF TECH	Smith, M. C., Jr.	JSC	Karel, M.	NAS 9-12485	2390
53	PENN STATE UNIV PK	Noll, L. C.	ARC	Severs, W. B	NSG 2122	3200
53	ST LOUIS UNIVERSITY	Greenleaf, J. E.	ARC	VanBeaumont, W.	NGR 26-006-039	2636
53	ST LOUIS UNIVERSITY	Greenleaf, J. E.	MSFC	VanBeaumont, W.	NSG 2023	2637
53	STANFORD UNIVERSITY	Holton, E. M.	ARC	Feldman, D	NCA 2-745709	1293
53	STANFORD UNIVERSITY	Sandler, H.	ARC	Beaver, W. L.	NGR 05-020-615	1324
53	STANFORD UNIVERSITY	Sandler, H.	ARC	Angell, J.	NGR 05-020-690	1330
53	STANFORD UNIVERSITY	Young, D. R.	ARC	Steele, C. R.	NSG 2092	1345
53	TEMPLE UNIVERSITY	Nachtwey, D. S.	JSC	Urbach, F.	NAS 9-15207	3216
53	TUFTS UNIVERSITY	Jackson, M. M.	JSC	Spodick, D. H.	NSG 9046	2494
53	TULANE UNIVERSITY	Mehler, W. R.	ARC	Brizzee, K. R.	NSG 2139	2196
53	UNIV CALIF-BERKELEY	Ellis, S.	ARC	Nicholl, C	NCA 2-50703	1390
53	UNIV CALIF-DAVIS	Greenleaf, J. E.	ARC	Bernauer, E. M.	NCA 2-180703	1449
53	UNIV CALIF-DAVIS	Rambaut, P. C.	JSC	Vogel, J. M.	NAS 9-15203	1446
53	UNIV CALIF-SAN DIEGO	Greenleaf, J. E.	ARC	West, J. B	NGL 05-009-109	1535
53	UNIV CALIF-SAN DIEGO	Homick, J. L.	JSC	Bullock, T. H.	NSG 9048	1565
53	UNIV CALIF-SAN FRAN	Feller, D. D.	ARC	Searle, G. L.	NCA 2-665703	1568

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OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
53	UNIV CALIF-SAN FRAN	Sandler, H.	ARC	Carlsson, E.	NCA 2-665707	1570
53	UNIV CALIF-SAN FRAN	Sandler, H.	ARC	Glantz, S. A.	NCA 2-665708	1571
53	UNIV CALIF-SAN FRAN	Keil, L. C.	ARC	Ramsay, D. J.	NCA 2-665709	1572
53	UNIV HOUSTON-HOUSTON	Schneider, H. J.	JSC	Zlatkis, A.	NAS 9-14534	3403
53	UNIV OF IOWA	Hull, W. E.	JSC	Abboud, F. M.	NSG 9060	2115
53	UNIV MARYLAND-BALT	Sharp, J. C.	ARC	Grenell, R. G.	NSG 2098	2233
53	UNIV MICH-ANN ARBOR	Homick, J. L.	JSC	Anderson, D.	NAS 9-15244	2531
53	UNIV OF PITTSBURGH	Mah, R. W.	ARC	Gualtierotti, T.	NSG 2197	3233
53	UNIV SAN FRANCISCO	Bailey, J. V.	JSC	Benton, E. V.	NAS 9-15152	1591
53	UNIV WISC-MADISON	Friedman, D. S.	GSFC	Houston, N.	NAS 5-23500	3704
53	WAYNE STATE UNIV	Young, D. R.	ARC	Orne, D.	NSG 2008	2569
53	WRIGHT STATE UNIV	Young, D. R.	ARC	Beljan, J. R.	NSG 2034	3106
59	BAYLOR COL OF MED	Leach, C. S.	JSC	DiFerrante, N.	NAS 9-13540	3318
59	BAYLOR COL OF MED	Leach, C. S.	JSC	Suki, W. N.	NAS 9-14715	3325
59	BOSTON UNIVERSITY	Larson, C. A.	HQ-SB	Fulton, G. P.	NGR 22-004-018	2316
59	BRANDEIS UNIVERSITY	Homick, J. L.	JSC	Lackner, J. R.	NAS 9-15147	2 22
59	CASE WESTERN RESERVE	McCutcheon, E. P.	ARC	Ko, W. H.	NGR 36-027-053	3016
59	CLARKSON COL OF TECH	Halstead, T. W	HQ-SB	McNulty, P. J.	NSG 7170	2794
59	COLLEGE OF WM & MARY	Jones, W. L	HQ-SB	Aceto, H., Jr.	NSG 7073	3523
59	COLORADO STATE UNIV	Tremor, J. W	ARC	Baker, R.	NAS 2-6615	1633
59	COLORADO STATE UNIV	Hoffman, R. A.	JSC	Lett, J. T	NSG 9045	1664
59	CORNELL UNIVERSITY	Morrison, D. R.	JSC	Rubin, A. L.	NAS 9-15378	2836
59	CORNELL UNIV-MED CTR	Danellis, J. V.	ARC	Reis, D. J.	NSG 2259	2873
59	EMORY UNIVERSITY	Daunton, N. G.	ARC	Persinger, A. A.	NGR 11-001-045	1898
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Walker, C. A.	NSG 2029	1833
59	FLORIDA A&M UNIV	Winget, C. M	ARC	Lamba, S. S.	NSG 2103	1834
59	FLORIDA A&M UNIV	Winget, C. M.	ARC	Soliman, K. F.	NSG 2183	1835
59	FLORIDA A&M UNIV	Malone, J. E.	KSC	Harrell, B. E.	NSG 805	1831
59	GEORGE WASHINGTON U	Young, R. S.	HQ-SB	Unavailable	NASW 2768	1769
59	HAHNEMANN MED COL	Chappelle, E.	GSFC	Gutekunst, R. R	NAS 5-20865	3157
59	JOHNS HOPKINS UNIV	Sebesta, P. D.	ARC	Ray, G. C.	NAS 2-9300	2208
59	KENTUCKY STATE UNIV	Morrison, J. D.	KSC	Kloek, G.	NSG 801	2157
59	LEHIGH UNIVERSITY	Reeves, T. A.	MSFC	VanDerHoff, J. W	NAS 8-32657	3163
59	LA ST U&A&M COL-BRCH	Rusoff, I. I.	NSTL	Wolverton, V. C.	NAS13-38	2182
59	MASS INST OF TECH	Daunton, N. G	ARC	Young, L. R.	NSG 2032	2449
59	MASS INST OF TECH	Rambaut, P. C	JSC	Munro, H. N.	NAS 9-15194	2391
59	MASS INST OF TECH	Lazarowski, S. M	JSC	Young, L. R.	NAS 9-15343	2392
59	MIAMI UNIVERSITY	Homick, J. L	JSC	Parker, D. E.	NAS 9-14538	3044
59	PURDUE UNIVERSITY	Stonesifer, G. R.	GSFC	Bauer, M. E.	NAS 5-20793	2056
59	SAN FRAN STATE UNIV	Klein, H. P.	ARC	Orenberg, J. B.	NCA 2-660704	1234
59	SAN JOSE STATE UNIV	Chang, S.	ARC	West, M.	NCA 2-675707	1240
59	SO UNIV-BATON ROUGE	Sandler, H.	ARC	Ray, G.	[illegible] 7041	2189
59	STANFORD UNIVERSITY	Mehler, W. R.	ARC	Chow, K. L.	NGR 05-020-[illegible]25	1320
59	STANFORD UNIVERSITY	Leach, C. S.	JSC	Davidson, J. M.	NAS 9-14717	1285
59	STANFORD UNIVERSITY	Carter, C. H.	HQ-P	Beard, R. R.	NGT 05-020-777	1314
59	STANFORD UNIVERSITY	Young, R. S.	HQ-SB	Bonner, W. A.	NGL 05-020-582	1314
59	STATE UNIV NY-ALBANY	Morrison, D. R.	JSC	VanOss, C. J.	NAS 9-15365	2925
59	TEXAS A&M UNIVERSITY	Stonesifer, G. R.	GSFC	Rouse, J. W., Jr.	NAS 5-20796	3362
59	TEXAS A&M UNIVERSITY	Smith, M. C., Jr	JSC	Burns, E. E	NAS 9-12434	3370
59	UNIV OF ARIZONA	Kimsey, S. L.	JSC	Bartels, P. H.	NAS 9-14692	1098
59	UNIV OF ARIZONA	Vitale, J. A.	HQ-P	Bier, M.	NSG 7333	1143
59	UNIV CALIF-BERKELEY	MacElroy, R. D	ARC	Spear, R.	NCA 2-20710	1395
59	UNIV COLORADO-BOLDR	Szajna, E. F	GSFC	Krebs, P.	NAS 5-20948	1670
59	UNIV HOUSTON-HOUSTON	Sauer, R. L.	JSC	Cox, J. E.	NAS 9-11676	3400
59	UNIV ILLINOIS-URBANA	Melgares, E.	JSC	Voss, E. W.	NAS 9-15328	2023
59	UNIV OF LOUISVILLE	Hoffman, R. A.	JSC	Keefe, J. R.	NAS 9-15213	2179
59	UNIV MD-EASTRN SHORE	Trafford, G. H.	WFC	Lynk, W. I	NSG 6017	1313
59	UNIV MICH-ANN ARBOR	Homick, J. L.	JSC	Anderson, D. I	NAS 9-[illegible]575	2532

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO.
59	U MINN-MNPLS-ST PAUL	Smith, M. C., Jr.	JSC	LaBuza, T. P	NAS 9-12560	2583
59	UNIV MO-COLUMBIA	Quattrone, P. D.	ARC	Winnick, J	NSG 2193	2644
59	UNIV MO-ROLLA	Webbon, B. W	ARC	Mills, J. B.	NGR 26-004-097	2647
59	UNIV N CAR-CHPL HILL	Leach, C	JSC	Gitelman, H. J.	NAS 9-14697	3006
59	UNIV ORGEON-HLTH CTR	Harwell, R. J.	MSFC	Brooks, D. E.	NAS 8-31386	3137
59	UNIV ORGEON-HLTH CTR	Scott, F. E.	MSFC	Knox, R. J.	NAS 8-32162	3139
59	UNIV TEXAS-AUSTIN	Primeaux, G. R.	JSC	Schmandt, J	NAS 9-15297	3434
59	UNIV OF WASHINGTON	Rambaut, P. C.	JSC	Nelp, W. B.	NAS 9-13029	3660
59	UNIV WISC-MADISON	OHandley, D. A.	HQ-KT	Huston, N.	NASW 2819	3710
61	FLORIDA A&M UNIV	Winget, C. M	ARC	Walker, C. A.	NCA 2-230701	1829
61	LEHIGH UNIVERSITY	Reeves, F. A	MSFC	VanDerHoff, J.	NAS 8-32399	3161
61	SAN JOSE STATE UNIV	Danellis, J. V	ARC	Fox, R.	NCA 2-675710	1243
61	UNIV CALIF-L ANGELES	Ellis, S.	ARC	Parlow, A.	NCA 2-390801	1473
61	UNIV CALIF-SAN DIEGO	Winter, D. L.	ARC	Galambos, R.	NGR 05-009-083	1542
62	CAL STATE U-HAYWARD	Tanner, T. A., Jr.	ARC	Sieber, J.	NCA 2-290705	1217
62	JOHNS HOPKINS UNIV	Patton, R. M	ARC	Brady, J V.	NGR 21-001-111	2217
62	WESTERN NEW MEXICO U	Bourke, R. D	JPL	Lundahl, C. R.	NSG 902	2776
69	COLUMBIA UNIVERSITY	Cawthorn, J M.	LARC	Galanter, E.	NSG 1115	2815
69	MASS INST OF TECH	Daunton, N. G	ARC	Held, R. M.	NGL 22-009-308	2400
69	NO CAROLINA STATE U	Mayes, W. H.	LARC	Horvath, J. J.	NGL 34-002-095	2991
69	OHIO STATE UNIV	Lauber, J. K.	ARC	Gilson, R. D	NAS 2-8954	3048
69	OHIO STATE UNIV	Dunn, R S.	ARC	Gilson, R. D	NSG 2179	3065
69	SAN JOSE STATE UNIV	Stew [illegible] D	ARC	Clark, W. B.	NGL 05-046-002	1245
69	UNIV ALA-HUNTSVILLE	Tanne [illegible] A., Jr.	ARC	Rogers, J. G.	NSG 2058	1058
69	UNIV OF FLORIDA	Patton, R. M.	ARC	Webb, W. B.	NGR 10-005-057	1860
69	UNIV OF LOUISVILLE	Mayes, W. H	LARC	Loeb, M.	NSG 1220	2176
69	UNIV TEXAS-AUSTIN	Tanner, T. A., Jr.	ARC	Helmreich, R L.	NSG 2065	3448
69	UNIV TEXAS-GALVESTON	Reschke, M. F.	JSC	Correia, M J.	NAS 9-14641	3482
72	NEW YORK UNIVERSITY	Gray E. Z.	HQ-K	Morgenstern, O.	NSG 7169	2890
72	STANFORD UNIVERSITY	Hornby, H.	ARC	Rosenberg, N.	NSG 2202	1353
72	UNIV MARYLAND-COL PK	Alfonsi, P. J.	WFC	Harmon, D. M	NSG 6010	2296
72	UNIV OF VIRGINIA	Rollins, R. H.	HQ-RX	Kuhlthau, A R.	NSG 7266	3609
73	UNIV OF DAYTON	Hein, G. F.	LERC	Engler, N. A	NAS 3-[illegible]99	3086
73	UNIV HOUSTON-HOUST-N	Wright, M D.	HQ-AD	Unavailable	NASW 2691	3409
75	GEORGE WASHINGTON U	Wright, M. D.	HQ-AD	Logsdon, J. M.	NSG 7145	1793
75	GEORGE WASHINGTON U	Young, R. S.	HQ-SB	Unavailable	NASW 2890	1770
75	GEORGE WASHINGTON U	Halstead, T W.	HQ-SB	Head, M. C	NASW 3029	1771
75	PEPPERDINE UNIV-MLBU	Hornby, H.	ARC	Album, H. J	NSG 2159	1226
75	STANFORD UNIVERSITY	Barnett, R. M.	ARC	Pederson, C A.	NAS 2-8898	1271
75	W VA COL GRAD STUDY	Rollins, R. H	HQ-RX	Cobb, W. E	NSG 7089	3690
79	SOUTHERN METHODIST U	Tanner, T. A., Jr	ARC	Starling, J	NSG 2006	3359
79	UNIV CALIF-BERKELEY	Tanner, T A., Jr.	ARC	LaPorte, T. R.	NGR 05-003-471	1410
79	UNIV OF SANTA CLARA	Glazer, J. H.	ARC	Alexander, G	NCA 2-685402	1595
99	BENNETT COLLEGE-NC	Pohly, J. G.	HQ-P	Sayles, J. N.	NGT 34-017-001	2976
99	BOWIE STATE COLLEGE	Pohly, J. G	HQ-P	Kirksey, [illegible]. H.	NGT 21-027-012	2204
99	BROWN UNIVERSITY	Williams, T S., Jr	LARC	Mutch, T. A.	NAS 1-9680	3241
99	CAL STATE U-CHICO	Rich, W. B.	HQ-FE	Unavailable	NASW 2835	1211
99	CHICAGO STATE UNIV	Young, S. G.	LERC	Treptow, R S.	NSG 3030	1974
99	COLLEGE OF WM & MARY	Anderson, A. F.	LARC	Aceto, H., Jr	NAS 1-14972	3516
99	COLLEGE OF WM & MARY	Anderson, A. F.	LARC	Rublein, G T.	NGL 47-006-058	3517
99	COLUMBIA UNIVERSITY	Jennings, N.	GSFC	Lewis, J. P.	NAS 5-22936	2799
99	COLUMBIA UNIVERSITY	Jennings, N	GSFC	Lewis, J P.	NAS 5-24080	2802
99	CORNELL UNIVERSITY	Williams, T. S., Jr.	LARC	Sagan, C. E.	NAS 1-9683	2831
99	CORNELL UNIV-MED CTR	Nerren, B H.	MSFC	Rubin, A. L.	NAS 8-31513	2872
99	ESTRN SHORE CMTY COL	Milliner, J B	WFC	Unavailable	NAS 6-2707	3524
99	GEORGE WASHINGTON U	Jackson, H. D.	LERC	Wood, F B.	NSG 3130	1791
99	GEORGIA INST OF TECH	Hall, J. B., Jr.	LARC	Wilkins, R D	NAS 1-14947	1903
99	GOUCHER COLLEGE	Pohly, J G.	HQ-P	Billet, J.	NGT 21-123-001	2207

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NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO
99	HOWARD UNIVERSITY	Mundy, J. R.	GSFC	Cox, L. L	NCA 5-21	1801
99	INDIANA U-BLOOMINGTN	Holley, H. L	HQ-KT	Shriner, H	NASW 2714	2047
99	INDIANA U-BLOOMINGTN	Bivins, R G	HQ-KT	Shriner, R D	NASW 2845	2048
99	MASS INST OF TECH	Wempe, T. E	ARC	Sheridan, T B	NSG 2118	2451
99	MASS INST OF TECH	Wempe, T F	ARC	Athans, M	NSG 2180	2455
99	MASS INST OF TECH	Clark, T. A	GSFC	Counselman, C. C., III	NGR 22-009-839	2433
99	MASS INST OF TECH	Williams, T S, Jr	LARC	Shapiro, I. I.	NAS 1-9702	2363
99	MASS INST OF TECH	ONeal, R L.	LARC	McCarthy, J F., Jr.	NSG 1299	2439
99	MASS INST OF TECH	Carter, C H	HQ-P	McCarthy, J. F., Jr	NGL 22-009-638	2404
99	MOREHOUSE COLLEGE	Pohly, J. G	HQ-P	Hall, J	NGT 11-008-004	1938
99	NM HIGHLANDS UNIV	Pohly, J G.	HQ-P	Zenick, H	NGT 32-010-001	2734
99	NORTHWESTERN UNIV	Morris, J D	HQ-P	Radnor, M	NGR 14-007-136	1983
99	OKLAHOMA STATE UNIV	Miller, S A.	ARC	Wiggins, K E.	NAS 2-7273	3108
99	OLD DOMINION UNIV	Whitlock, C H	LARC	Ousterhout, D S	NAS 1-14193	3535
99	OLD DOMINION UNIV	Dempsey, T K	LARC	Kirby, R H	NSG 1350	3573
99	OREGON STATE UNIV	Monroe, R	HQ-U	Bowman, B	NASW 3012	3123
99	PENN STATE U-UNIV PK	Golden, T S	GSFC	Feller, I R	NAS 5-24329	3179
99	PRINCETON UNIVERSITY	Gilbreath, W	ARC	ONeill, G K.	NSG 2062	2718
99	PURDUE UNIVERSITY	Maurer, H E	WFC	Anuta, P E	NAS 6-2816	2059
99	SAN FRAN STATE UNIV	Tau, K A.	ARC	Eisenberg, L	NCA 2-660501	1231
99	SAN J[illegible]N STATE UNIV	Illingham, J B.	ARC	Seeger, C. L	NSG 2210	1235
99	SO DAKOTA STATE UNIV	Gordon, F., Jr	GSFC	Moore, D	NAS 5-24206	3261
99	SOUTHEASTN OKLA ST U	Bivins, R G	HQ-KT	Gold, C H	NASW 2881	3110
99	SOUTHEASTN OKLA ST U	Bivins, R G.	HQ-KT	Gold, C H	NASW 3007	3111
99	SPELMAN COLLEGE	Pohly, J G	HQ-P	Falconer, L	NGT 11-013-001	1951
99	STANFORD UNIVERSITY	Williams, T S., Jr	LARC	Levinthal, F C.	NAS 1-9682	1267
99	ST UNIV SYSTM OF FLA	Dolby, W	HQ-KT	Unavailable	NASW 3060	1850
99	TENNESSEE STATE UNIV	Easley, R E.	JSC	Sampson, C	NAS 9-15441	3269
99	TUFTS UNIVERSITY	Wempe, T F	ARC	Kreifeldt, J G.	NSG 2156	2493
99	UNIV ALA-HUNTSVILLE	Decher, R	MSFC	Hendricks, J. B.	NAS 8-29316	3043
99	UNIV CALIF-BERKELEY	Carter, C. H	HQ-P	Anderson, K A	NGL 05-003-497	1403
99	UNIV CALIF-HASTINGS	Glazer J H	ARC	Forrester, R	NCA 2-280701	1455
99	UNIV OF CHICAGO	Carter, C H	HQ-P	Simpson, J A.	NGL 14-001-258	2002
99	UNIV OF CHILE	Lafleur, W	GSFC	Danyau, C R	NAS 5-1925	3746
99	UNIV OF CONNECTICUT	Friedman, D S	GSFC	Wilde, D U	NAS 5-22539	1735
99	UNIV OF CONNECTICUT	Bivins, R G	HQ-KT	Wilde, D. U	NASW 3059	1736
99	UNIV OF DENVER	Ault, L A	HQ-KT	Freeman, J E	NASW 2766	1718
99	UNIV OF DENVER	Ault, L. A	HQ-KT	Johnson, E D	NASW 2892	1719
99	UNIV OF DENVER	Ault, L. A	HQ-KT	Unavailable	NASW 3021	1721
99	UNIV OF FLORIDA	Dolby, W R	HQ-KT	Unavailable	W-14206	1873
99	UNIV OF GEORGIA	Harrison, J. O	HQ-KT	Unavailable	NASW 2948	1954
99	UNIV ILLINOIS-URBANA	Wempe, T. E	ARC	Rouse, W. B	NSG 2119	2035
99	UNIV OF KENTUCKY	Dolby, W	HQ-KT	Unavailable	NASW 3039	2162
99	UNIV MD-EAST[illegible] SHORE	Floyd, J C	WFC	Unavailable	NAS 6-2595	2307
99	UNIV MD-EASTR[illegible], SHORE	Oberholtzer, J D	WFC	Wutoh, J G	NSG 6006	2311
99	U MINN-MNPLS-ST PAUL	Williams, T S, Jr	LARC	Nier, A. O	NAS 1-9697	3573
99	U MINN-MNPLS-ST PAUL	Carter, C H.	HQ-P	Anderson, G W	NGT 24-005-078	2592
99	UNIV OF NEW MEXICO	Bivins, R G	HQ-KT	Unavailable	NASW 2805	2763
99	UNIV OF NEW MEXICO	Bivins, R G	HQ-KT	Unavailable	NASW 2936	2764
99	UNIV OKLAHOMA-NORMAN	Kelly, M	HQ-U	Thomas, G	NASW 3020	3116
99	UNIV OF PITTSBURGH	Bivins, R. G	HQ-KT	Unavailable	NASW 2838	3223
99	UNIV OF PITTSBURGH	Bivins, R G	HQ-KT	Unavailable	NASW 3042	3224
99	UNIV OF SANTA CLARA	Lile, M	ARC	Bruno, A V	NSG 2036	1610
99	UNIV OF SOUTHERN CAL	Holley, H L	HQ-KT	Unavailable	NASW 2771	1620
99	UNIV OF SOUTHERN CAL	Gilbert, R	HQ-KT	Unavailable	NASW 3009	1621
99	UNIV OF SOUTHERN CAL	Bivins, R G	HQ-KT	Munushan, J	NASW 3031	1622
99	UNIV TEXAS-DALLAS	Williams, T S, Jr	LARC	Hanson, W B	NAS 1-9699	3462
99	UNIV TEXAS-DALLAS	Cart[illegible], C H	HQ-P	Johnson, E S	NGL 44-004-130	3471

NASA'S UNIVERSITY PROGRAM
APPENDIX B CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

FIELD CODE	INSTITUTION	TECHNICAL OFFICER	TECH OFF LOC	FIRST PRINCIPAL INVESTIGATOR	GRANT/ CONTRACT NUMBER	ACC NO
99	UNIV OF VIRGINIA	Martin, D J.	LARC	Barnes, D W	NAS 1-12754	3584
99	VIRGINIA POLY INST	Anderson, A F	LARC	Unavailable	NAS 1-15080	3617

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NASA'S UNIVERSITY PROGRAM
APPENDIX C
CROSS INDEX BY FIRST TECHNICAL OFFICER LOCATION

Technical Officers are usually located at the NASA installation funding a particular grant or contract. There may be a second technical officer, shown in the citation, at the same or a different installation. Abbreviations used for locations are: ARC, Ames Research Center; DFRC, Dryden Flight Research Center; GSFC, Goddard Space Flight Center; KSC, Kennedy Space Center, JSC, Johnson Space Center; LARC, Langley Research Center; LERC, Lewis Research Center; MSFC, Marshall Space Flight Center; National Space Technology Laboratories, NSTL; WFC, Wallops Flight Center and HQ, Headquarters. The HQ designator carries suffixed letters identifying individual Headquarters offices; an explanation of these identifiers and full addresses for all installations may be found in the prefatory pages. The key for the "Field Code" column is in Appendix B.

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TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
ARC	Buell, D. A.	ADELPHI UNIVERSITY	NSG 2088	Steinmetz, W. J.	12	2778
ARC	Pollock, G. E.	ARIZONA STATE UNIV	NCA 2-35702	Yuen, G. U.	12	1076
ARC	Pollack, J. B.	ARIZONA STATE UNIV	NCA 2-35703	Krinsley, D.	32	1077
ARC	Chapman, G. T.	AUBURN UNIV-AUBURN	NCA 2-48701	Vestal, D. M., Jr.	46	1021
ARC	Hall, C. F.	BRIGHAM YOUNG UNIV	NAS 2-7358	Jones, D. E.	13	3490
ARC	Miquel, J.	BROOKLYN COLLEGE	NCA 2-75602	Cottrell, S. F.	51	2780
ARC	Hall, C. F.	CALIF INST OF TECH	NAS 2-6556	Munch, G.	11	1159
ARC	Gillespie, C. M., Jr	CALIF INST OF TECH	NGR 05-002-281	Werner, M. W.	11	1186
ARC	Pollack, J. B.	CALIF INST OF TECH	NSG 2229	Yung, Y. L.	31	1192
ARC	Maisel, M. D.	CAL POLY ST U-S LUIS	NCA 2-678701	Grimes, J. E.	22	1208
ARC	Bunch, T. E.	CAL ST COL-SONOMA	NCA 2-720701	Vennum, W.	32	1210
ARC	Kourtides, D. A.	CAL STATE U-CHICO	NSG 2240	Sours, C. R.	12	1212
ARC	Boese, R. W.	CAL STATE U-FULLERTN	NCA 2-253701	Nanes, R.	13	1214
ARC	Pollock, G. E.	CAL STATE U-HAYWARD	NCA 2-290704	Warnke, D. A.	32	1216
ARC	Tanner, T. A., Jr	CAL STATE U-HAYWARD	NCA 2-290705	Sieber, J.	62	1217
ARC	Hochstein, L. I.	CAL STATE U-L ANGLES	NSG 2199	Andreoli, A. J.	51	1218
ARC	Quattrone, P. D.	CASE WESTERN RESERVE	NGR 36-027-050	Yeager, E.	12	3014
ARC	McCutcheon, E. P.	CASE WESTERN RESERVE	NGR 36-027-053	Ko, W. H.	59	3016
ARC	Bunch, T. E.	CHICAGO STATE UNIV	NSG 2188	Methot, R. L.	32	1973
ARC	Black, D. C.	CLARK COLLEGE	NSG 2143	Walker, G. H.	31	1894
ARC	Tremor, J. W.	COLORADO STATE UNIV	NAS 2-6615	Baker, R.	59	1633
ARC	Billman, K. W.	COLORADO STATE UNIV	NCA 2-165701	She, C. Y.	13	1642
ARC	Holton, E. M.	COLORADO STATE UNIV	NGR 06-002-075	Jordan, J. P.	51	1643
ARC	Holton, E. M.	COLORADO STATE UNIV	NSG 2232	Jordan, J. P.	51	1651
ARC	Shimazaki, T.	COLORADO STATE UNIV	NSG 2253	Reiter, E. R.	31	1652
ARC	Pollack, J. B.	CORNELL UNIVERSITY	NCA 2-175701	Burns, J. A.	11	2838
ARC	Pollack, J. B.	CORNELL UNIVERSITY	NCA 2-175702	Toon, O. B.	39	2839
ARC	McCreight, C. R.	CORNELL UNIVERSITY	NCA 2-175703	Houck, J. R.	42	2840
ARC	Gillespie, C. M., Jr	CORNELL UNIVERSITY	NGR 33-010-081	Houck, J. R.	11	2844
ARC	Cameron, R. M.	CORNELL UNIVERSITY	NGR 33-010-146	Harwit, M. O.	11	2849
ARC	Cameron, R. M.	CORNELL UNIVERSITY	NGR 33-010-182	Houck, J. R.	11	2853
ARC	Nelson, H. G.	CORNELL UNIVERSITY	NSG 2078	Johnson, H. H.	47	2860
ARC	Gillespie, C. M., Jr	CORNELL UNIVERSITY	NSG 2174	Elliot, J. L.	11	2861
ARC	Danelis, J. V.	CORNELL UNIV-MED CTR	NSG 2259	Reis, D. J.	59	2873
ARC	Holton, E. M.	EMORY UNIVERSITY	NGL 11-001-009	Popovic, V. P.	51	1896
ARC	Sandler, H.	EMORY UNIVERSITY	NGR 11-001-016	Bourne, G. H.	51	1897
ARC	Daunton, N. G.	EMORY UNIVERSITY	NGR 11-001-045	Perachio, A. A.	59	1898
ARC	Winget, C. M.	FLORIDA A&M UNIV	NCA 2-230701	Walker, C. A.	61	1829
ARC	Winget, C. M.	FLORIDA A&M UNIV	NSG 2029	Walker, C. A.	59	1833
ARC	Winget, C. M.	FLORIDA A&M UNIV	NSG 2103	Lamba, S. S.	59	1834

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NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Winget, C. M.	FLORIDA A&M UNIV	NSG 2183	Soliman, K. F.	59	1835
ARC	Davis, S. S.	FLORIDA STATE UNIV	NSG 2201	Tam, C. K.	41	1843
ARC	Danellis, J. V.	GEORGETOWN UNIV	NCA 2-258701	Kellar, K. J.	53	1794
ARC	Hall, C. F.	HARVARD UNIVERSITY	NAS 2-9127	Goody, R. M.	11	2324
ARC	Young, D. R.	HARVARD UNIVERSITY	NGR 22-007-256	Tashjian, A. H., Jr.	52	2341
ARC	Ellis, S.	HARVARD UNIVERSITY	NSG 2144	Goldberg, A. L	51	2346
APC	Doolin, B. F.	HARVARD UNIVERSITY	NSG 2265	Brockett, R. W.	41	2347
ARC	Sandler, H.	HOWARD UNIVERSITY	NGL 09-011-017	Cothran, L. N.	53	1802
ARC	Padrick, B. D.	HUMBOLDT STATE UNIV	NSG 2244	Hankins, D.	19	1225
ARC	White, J.	ILL INST OF TECH	NCA 2-320701	Forrester, R.	22	1975
ARC	Chang, S.	INDIANA U-BLOOMINGTN	NCA 2-335702	Hayes, J. M.	12	2049
ARC	Haymaker, W. E.	INDIANA U-INDIANAPLS	NAS 2-7927	Zeman, W.	51	2054
ARC	Pollack, J. B	IOWA STATE UNIV	NCA 2-340701	Iversen, J. D	49	2089
ARC	Pollack, J. B.	IOWA STATE UNIV	NCA 2-340703	Grossman, A. S.	11	2090
ARC	Kutler, P.	IOWA STATE UNIV	NCA 2-340704	Anderson, D. A.	49	2091
ARC	Kutler, P.	IOWA STATE UNIV	NCA 2-340705	Pierson, B. L.	49	2092
ARC	Steger, J. L.	IOWA STATE UNIV	NCA 2-340706	Tannehill, J. C.	21	2093
ARC	Rakich, J. V	IOWA STATE UNIV	NGR 16-002-038	Tannehill, J. C.	41	2094
ARC	Rossow, V. J.	IOWA STATE UNIV	NSG 2040	Iversen, J. D.	41	2096
ARC	Malcolm, G. N.	IOWA STATE UNIV	NSG 2091	James, W. D.	41	2097
ARC	Chapman, G. T.	IOWA STATE UNIV	NSG 2150	Herget, C. J.	41	2098
ARC	Presley, L. L.	IOWA STATE UNIV	NSG 2152	Cook, W. J.	41	2099
ARC	Olson, L. E.	IOWA STATE UNIV	NSG 2257	James, W. D.	41	2100
ARC	Sebesta, P. D.	JOHNS HOPKINS UNIV	NAS 2-9300	Ray, G. C.	59	2208
ARC	Danellis, J. V.	JOHNS HOPKINS UNIV	NCA 2-355701	Gann, D. S.	53	2215
ARC	Patton, R. M.	JOHNS HOPKINS UNIV	NGR 21-001-111	Brady, J. V.	62	2217
ARC	Hofman, L. B.	KANSAS STATE UNIV	NCA 2-363702	Ahmed, N.	45	2118
ARC	Quattrone, P. D	KENT STATE UNIV-KENT	NSG 2013	Madey, R.	12	3042
ARC	Zill, L. P.	LEHIGH UNIVERSITY	NCA 2-380501	Wei, R. P.	47	3164
ARC	Rabbott, J. P., Jr.	MASS INST OF TECH	NAS 2-7262	Galanter, E.	41	2365
ARC	Hall, C. F.	MASS INST OF TECH	NAS 2-9132	Shapiro, I. I.	11	2366
ARC	Raymos, R.	MASS INST OF TECH	NAS 2-9151	Counselman, C. C., III	11	2367
ARC	Rabbott, J. P., Jr.	MASS INST OF TECH	NAS 2-9279	Ham, N. D.	41	2368
ARC	Hall, C. F.	MASS INST OF TECH	NAS 2-9473	Tettingill, G.	11	2369
ARC	Hall, C. F.	MASS INST OF TECH	NAS 2-9476	Pettengill, G.	11	2370
ARC	Doolin, B. F.	MASS INST OF TECH	NGL 22-009-124	Athans, M.	49	2397
ARC	Daunton, N. G.	MASS INST OF TECH	NGL 22-009-308	Held, R. M	69	2400
ARC	Winget, C. M.	MASS INST OF TECH	NGR 22-009-627	Wurtman, R. J	53	2416
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-723	Reid, R. C.	12	2420
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-766	Steinfeld, J. I.	12	2425
ARC	Daunton, N. G.	MASS INST OF TECH	NGR 22-009-798	Bizzi, E.	51	2428
ARC	Quattrone, P. D.	MASS INST OF TECH	NGR 22-009-799	Modell, M.	12	2429
ARC	Daunton, N. G	MASS INST OF TECH	NGR 22-009-826	Nauta, W. J.	51	2432
ARC	Reynolds, R. T.	MASS INST OF TECH	NSG 2010	Prinn, R. G.	31	2448
ARC	Daunton, N. G.	MASS INST OF TECH	NSG 2032	Young, L. R	59	2449
ARC	Rabbott, J. P., Jr.	MASS INST OF TECH	NSG 2095	Harris, W. L	41	2450
ARC	Wempe, T. E.	MASS INST OF TECH	NSG 2118	Sheridan, T. B	99	2451
ARC	Williams, L. J.	MASS INST OF TECH	NSG 2129	Taneja, N. K	41	2452
ARC	Biegers, J. C.	MASS INST OF TECH	NSG 2142	Widnall, S. E	41	2453
ARC	Gillespie, C. M., Jr	MASS INST OF TECH	NSG 2172	Kleinman, S. G	11	2454
ARC	Wempe, T. E	MASS INST OF TECH	NSG 2180	Athans, M.	99	2455
ARC	Popoff, I. G.	MASS INST OF TECH	NSG 2196	Alyea, F.	31	2456
ARC	Fewell, L. L	MASS INST OF TECH	NSG 2204	Tesoro, G	47	2457
ARC	Stewart, J. D.	MASS INST OF TECH	NSG 2230	Young, L. R	49	2458
ARC	Hall, C. F.	NEW YORK UNIVERSITY	NAS 2-7963	Weinberg, J. L.	11	2875
ARC	Hicks, R. M	NEW YORK UNIVERSITY	NGR 33-016-201	Garabedian, P. R.	41	2880
ARC	Williams, L. J.	NORTHWESTERN UNIV	NSG 2149	Spencer, F. A	41	1984
ARC	Lauber, J. K	OHIO STATE UNIV	NAS 2-8954	Gilson, R. D	69	3048

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
ARC	Galloway, T. L.	OHIO STATE UNIV	NAS 2-9714	Gregorek, G. M.	41	3049
ARC	Steger, J. L.	OHIO STATE UNIV	NCA 2-565701	Nakamura, S.	21	3055
ARC	Billingham, J.	OHIO STATE UNIV	NSG 2162	Dixon, R. S.	45	3063
ARC	Boese, R. W.	OHIO STATE UNIV	NSG 2175	Rao, K. N.	13	3064
ARC	Dunn, R. S.	OHIO STATE UNIV	NSG 2179	Gilson, R. D.	69	3065
ARC	Mehler, W. R.	OHIO STATE UNIV	NSG 2220	Lim, D. J.	51	3066
ARC	Jackson, C. T.	OHIO UNIVERSITY	NAS 2-9431	Lilley, R. W	41	3069
ARC	Miller, S. A.	OKLAHOMA STATE UNIV	NAS 2-7273	Wiggins, K. E.	99	3108
ARC	Steinle, F W., Jr.	OKLAHOMA STATE UNIV	NCA 2-575701	Tiederman, W. G.	41	3109
ARC	Wilson, D E.	OREGON STATE UNIV	NCA 2-586702	Murray, R. J.	39	3124
ARC	Keil, L. C.	PENN STATE U-UNIV PK	NSG 2122	Severs, W. B.	53	3200
ARC	Fanell, L. L.	PENN STATE U-UNIV PK	NSG 2241	Allcock, H. R.	12	3201
ARC	Hornby, H.	PEPPERDINE UNIV-MLBU	NSG 2159	Album, H. J	75	1226
ARC	Fohlen, G. M.	POLY INST OF NY	NSG 2147	Pearce, E. M.	12	2899
ARC	Riccitiello, S. R.	POLY INST OF NY	NSG 2182	Pearce, E. M.	12	2900
ARC	Key, D L.	PRINCETON UNIVERSITY	NAS 2-9437	Dukes, T. A	41	2697
ARC	Brigadier, W. L.	PRINCETON UNIVERSITY	NGR 31-001-277	Dukes, T. A.	41	2714
ARC	Gilbreath, W	PRINCETON UNIVERSITY	NSG 2062	ONeill, G. K.	99	2718
ARC	Horstman, C. C.	PRINCETON UNIVERSITY	NSG 2114	Bogdonoff, S. M	41	2719
ARC	Rabbott, J P., Jr.	PRINCETON UNIVERSITY	NSG 2161	Curtiss, H. C., Jr.	41	2720
ARC	Davis, S. S	PRINCETON UNIVERSITY	NSG 2194	Dowell, E H.	41	2721
ARC	Marvin, J. G	PURDUE UNIVERSITY	NSG 2135	Walker, J. D.	41	2071
ARC	Williams, L J.	PURDUE UNIVERSITY	NSG 2158	Drake, J. W.	41	2072
ARC	Gregory, T. J	PURDUE UNIVERSITY	NSG 2192	Anderson, D C	22	2073
ARC	Grant, T L.	RENSSELAER POLY-NY	NGR 33-018-188	Modestino, J. W	45	2913
ARC	Johnson, R. D.	RICE UNIVERSITY	NAS 2-9552	Ward, C. H.	31	3338
ARC	Greenleaf, J E.	ST LOUIS UNIVERSITY	NGR 26-006-039	VanBeaumont, W.	53	2636
ARC	Tau, K. A.	SAN FRAN STATE UNIV	NCA 2-660501	Eisenberg, L	99	1231
ARC	Lawless, J G.	SAN FRAN STATE UNIV	NCA 2-660701	Orenberg, J B.	12	1232
ARC	Black, D. C.	SAN FRAN STATE UNIV	NCA 2-660703	Hagar, C.	13	1233
ARC	Klein, H. P.	SAN FRAN STATE UNIV	NCA 2-660704	Orenberg, J B.	59	1234
ARC	Illingham, J. B.	SAN FRAN STATE UNIV	NSG 2210	Seeger, C L.	99	1235
ARC	Swan, P. R.	SAN JOSE STATE UNIV	NCA 2-675520	Miller, A.	41	1237
ARC	Bianchard, M B.	SAN JOSE STATE UNIV	NCA 2-675612	Maddock, M E	11	1238
ARC	Altman, R L.	SAN JOSE STATE UNIV	NCA 2-675706	Ling, A C	12	1239
ARC	Chang, S.	SAN JOSE STATE UNIV	NCA 2-675707	West, M	59	1240
ARC	Hewitt, J. L	SAN JOSE STATE UNIV	NCA 2-675708	Tucker, A. B	13	1241
ARC	Hicks, K. M	SAN JOSE STATE UNIV	NCA 2-675709	Leonard, T	41	1242
ARC	Danellis, J. V	SAN JOSE STATE UNIV	NCA 2-675710	Fox, R.	61	1243
ARC	Whitten, R. C.	SAN JOSE STATE UNIV	NCA 2-675711	Riegel, C. A.	31	1244
ARC	Stewart, J D	SAN JOSE STATE UNIV	NGL 05-046-002	Clark, W B	69	1245
ARC	Wydeven, T. J.	SAN JOSE STATE UNIV	NGR 05-046-011	Spitze, L A.	12	1246
ARC	Pollack, J. B.	SAN JOSE STATE UNIV	NSG 2047	Riegel, C. A	11	1247
ARC	Wydeven, T J	SAN JOSE STATE UNIV	NSG 2066	Spitze, L. A.	12	1248
ARC	Klein, H. P.	SAN JOSE STATE UNIV	NSG 2090	Neptune, J. A	51	1249
ARC	Kourtides, D A	SAN JOSE STATE UNIV	NSG 2105	Young, W	43	1250
ARC	Bolub, M. A.	SAN JOSE STATE UNIV	NSG 2111	Neptune, J. A	12	1251
ARC	Whitten, R C	SAN JOSE STATE UNIV	NSG 2130	Riegel, C. A.	31	1252
ARC	Riccitiello, S R.	SAN JOSE STATE UNIV	NSG 2165	Myronuk, D J	49	1253
ARC	Riccitiello, S. R	SAN JOSE STATE UNIV	NSG 2167	Sharfstein, H B	44	1254
ARC	Rosser, R. W	SAN JOSE STATE UNIV	NSG 2186	Neptune, J A	12	1255
ARC	Riccitiello, S R	SAN JOSE STATE UNIV	NSG 2200	Sharfstein, H B.	12	1256
ARC	Parker, J A	SAN JOSE STATE UNIV	NSG 2209	Ling, A C	12	1257
ARC	Dalton, B P	SAN JOSE STATE UNIV	NSG 2213	Ballard, R W	51	1258
ARC	Riccitiello, S. R	SAN JOSE STATE UNIV	NSG 2219	Myronuk, D J	12	1259
ARC	Altman, R L.	SAN JOSE STATE UNIV	NSG 2223	Ling, A C	12	1260
APC	Mansfield, J A	SAN JOSE STATE UNIV	NSG 2224	Holmstrom, I	49	1261
ARC	Mansfield, J A	SAN JOSE STATE UNIV	NSG 2235	Anderson, R	49	1262

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Blanchard, M. B.	SAN JOSE STATE UNIV	NSG 2236	Anderson, D. W.	32	1263
ARC	Woeller, F.	SAN JOSE STATE UNIV	NSG 2237	Mayer, L. A.	12	1264
ARC	Wrigley, R. C.	SAN JOSE STATE UNIV	NSG 2239	Broenkow, W. W.	33	1265
ARC	Wydeven, T. J.	SAN JOSE STATE UNIV	NSG 2247	Acrivos, J.	12	1266
ARC	Callas, G. P.	SO ILL UNIV-CARBONDL	NSG 2238	McCalla, T. M.	21	1991
ARC	Tanner, T. A., Jr.	SOUTHERN METHODIST U	NSG 2006	Starling, J.	79	3359
ARC	Sandler, H.	SO UNIV-BATON ROUGE	NSG 2041	Ray, G.	59	2189
ARC	Miquel, J.	STANFORD UNIVERSITY	NAS 2-6706	Bensch, K. G.	51	1270
ARC	Barnett, R. M.	STANFORD UNIVERSITY	NAS 2-8898	Pederson, C. A.	75	1271
ARC	Denery, D. G.	STANFORD UNIVERSITY	NAS 2-9083	DeBra, D. B.	41	1272
ARC	Lorell, K. R.	STANFORD UNIVERSITY	NAS 2-9304	Powell, J. D.	11	1273
ARC	Poppa, H. R.	STANFORD UNIVERSITY	NCA 2-745703	Spicer, W. E.	45	1288
ARC	Watson, V. R.	STANFORD UNIVERSITY	NCA 2-745704	Spreiter, J. R.	31	1289
ARC	Danellis, J. V.	STANFORD UNIVERSITY	NCA 2-745706	Barchas, J. D.	51	1290
ARC	Mandel, A. D.	STANFORD UNIVERSITY	NCA 2-745707	Merigan, T.	51	1291
ARC	Iufer, E. J	STANFORD UNIVERSITY	NCA 2-745708	Fairbank, W M.	32	1292
ARC	Holton, E. M.	STANFORD UNIVERSITY	NCA 2-745709	Feldman, D.	53	1293
ARC	Randle, R. J.	STANFORD UNIVERSITY	NCA 2-745710	Thompson, D. A.	49	1294
ARC	Poppa, H. R.	STANFORD UNIVERSITY	NCA 2-745711	Pound, G. M.	47	1295
ARC	Warming, R. F.	STANFORD UNIVERSITY	NCA 2-745712	Golub, G. H.	21	1296
ARC	Caroff, L. J.	STANFORD UNIVERSITY	NCA 2-745715	Petrosian, V.	13	1297
ARC	Black, D. C.	STANFORD UNIVERSITY	NCA 2-745716	Bracewell, R. N.	11	1298
ARC	Poppa, H. R.	STANFORD UNIVERSITY	NCA 2-745717	Boudart, M.	13	1299
ARC	Leonard, A	STANFORD UNIVERSITY	NCA 2-745718	Buneman, O.	41	1300
ARC	Hochstein, I	STANFORD UNIVERSITY	NCA 2-745719	Matin, A.	51	1301
ARC	Ardema, M. D	STANFORD UNIVERSITY	NCA 2-745720	Dajani, J. S	44	1302
ARC	Erzberger, H	STANFORD UNIVERSITY	NGL 05-020-007	Bryson, A. E., Jr.	49	1303
ARC	McCutcheon, E. P.	STANFORD UNIVERSITY	NGL 05-020-305	Harrison, D. C.	52	1311
ARC	Jones, J. L.	STANFORD UNIVERSITY	NGR 05-020-345	Thompson, D. A.	49	1318
ARC	Chang, S.	STANFORD UNIVERSITY	NGR 05-020-405	Loew, G. H.	12	1319
ARC	Mehler, W. R	STANFORD UNIVERSITY	NGR 05-020-435	Chow, K. L	59	1320
ARC	Danellis, J. V.	STANFORD UNIVERSITY	NGR 05-020-456	Luetscher, J. A.	52	1322
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-615	Beaver, W. L.	53	1324
ARC	Rubesin, M. W.	STANFORD UNIVERSITY	NGR 05-020-622	Reynolds, W. C.	47	1325
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-634	Harrison, D. C.	52	1326
ARC	Sandler, H.	STANFORD UNIVERSITY	NGR 05-020-690	Angell, J.	53	1330
ARC	Goldstein, H. F.	STANFORD UNIVERSITY	NGR 05-020-710	Bates, C.	46	1331
ARC	Aiken, T. N.	STANFORD UNIVERSITY	NSG 2007	Karamcheti, K.	19	1340
ARC	Sandler, H.	STANFORD UNIVERSITY	NSG 2020	Popp, R. L.	52	1341
ARC	McKenzie, R. L.	STANFORD UNIVERSITY	NSG 2050	Hanson, R. K	13	1342
ARC	Reynolds, R. T	STANFORD UNIVERSITY	NSG 2072	Spreiter, J. R.	31	1343
ARC	Howe, J T	STANFORD UNIVERSITY	NSG 2085	Bershader, D	42	1344
ARC	Young, D. R.	STANFORD UNIVERSITY	NSG 2092	Steele, C. R.	53	1345
ARC	Franklin, J. A.	STANFORD UNIVERSITY	NSG 2100	DeBra, D. B.	41	1346
ARC	Nachtsheim, P. R.	STANFORD UNIVERSITY	NSG 2102	Bates, C. W.	47	1347
ARC	Billingham, J.	STANFORD UNIVERSITY	NSG 2121	Peterson, A. M.	49	1348
ARC	Sandler, H.	STANFORD UNIVERSITY	NSG 2132	Harrison, D. C.	52	1349
ARC	Dolkas, C. B.	STANFORD UNIVERSITY	NSG 2141	Olefsky, J. M.	52	1350
ARC	Nachtsheim, P. R.	STANFORD UNIVERSITY	NSG 2166	Baganoff, D.	42	1351
ARC	Galloway, T. L.	STANFORD UNIVERSITY	NSG 2190	Shevell, R. S.	41	1352
ARC	Hornby, H.	STANFORD UNIVERSITY	NSG 2202	Rosenberg, N.	72	1353
ARC	Belsley, S.	STANFORD UNIVERSITY	NSG 2203	Dajani, J. S.	41	1354
ARC	Sandler, H.	STANFORD UNIVERSITY	NSG 2214	Popp, R. L.	45	1355
ARC	Ahtye, W. F	STANFORD UNIVERSITY	NSG 2215	Karamcheti, K.	19	1356
ARC	Davis, S. S.	STANFORD UNIVERSITY	NSG 2233	Karamcheti, K.	41	1357
ARC	Lorell, K. R.	STANFORD UNIVERSITY	NSG 2246	Powell, J. D	49	1358
ARC	Poppa, H. R.	STANFORD UNIVERSITY	NSG 2249	Pound, G. M.	13	1359
ARC	Cleveland, W. B	STANFORD UNIVERSITY	NSG 2250	Powell, J. D.	41	1360

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Arnold, J. O.	STANFORD UNIVERSITY	NSG 2251	Pound, G. M.	47	1361
ARC	Schmitz, F. H.	STANFORD UNIVERSITY	NSG 2254	Karamcheti, K.	39	1362
ARC	Peterson, V. L.	STANFORD UNIVERSITY	NSG 2255	Karamcheti, K.	41	1363
ARC	McCroskey, W. J.	STANFORD UNIVERSITY	NSG 2258	Reynolds, W. C.	41	1364
ARC	Tremor, J. W.	STATE U NY-STONY BRK	NAS 2-8986	Steward, F. C.	51	2940
ARC	Boese, R. W.	STATE U NY-STONY BRK	NCA 2-760601	Lutz, B. L.	13	2941
ARC	Gillespie, C. M., Jr.	STATE U NY-STONY BRK	NSG 2173	Simon, M.	11	2950
ARC	Whitten, R. C.	TALLADEGA COLLEGE	NSG 2217	Morrison, R. A.	13	1030
ARC	Mateer, G. G.	TEL-AVIV UNIVERSITY	NSG 7311	Brosh, A.	41	3751
ARC	Malcolm, G. N.	TEXAS A&M UNIVERSITY	NSG 2123	MacHa, J. M.	41	3388
ARC	Wong, J. T.	TEXAS A&M UNIVERSITY	NSG 2226	Foster, J. W.	41	3389
ARC	Holton, E. M.	TEXAS TECH UNIV	NSG 2137	Kenny, A. D.	51	3397
ARC	Wempe, T. E.	TUFTS UNIVERSITY	NSG 2156	Kreifeldt, J. G.	99	2493
ARC	MacElroy, R. D.	TULANE UNIVERSITY	NCA 2-800701	Johnson, E. J.	51	2195
ARC	Mehler, W. R.	TULANE UNIVERSITY	NSG 2139	Brizzee, K. R.	53	2196
ARC	Philpott, D. E.	TUSKEGEE INSTITUTE	NCA 2-810701	Sapp, W. J.	51	1032
ARC	Grant, T. L.	UNIV OF LEIDEN	NSG 7264	VanDerLaan, H.	11	3754
ARC	Tanner, T. A., Jr	UNIV ALA-HUNTSVILLE	NSG 2058	Rogers, J G.	69	1058
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-6265	Gehrels, A. M.	11	1086
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-8818	Tomasko, M. G.	31	1087
ARC	Hall, C. F.	UNIV OF ARIZONA	NAS 2-9486	Tomasko, M. G.	11	1088
ARC	Gillespie, C. M., Jr.	UNIV OF ARIZONA	NCA 2-40701	Larson, H. P.	11	1101
ARC	Gillespie, C. M., Jr.	UNIV OF ARIZONA	NGR 03-002-332	Harper, H. P.	11	1118
ARC	Gillespie, C. M., Jr.	UNIV OF ARIZONA	NGR 03-002-390	Hoffman, W. F.	11	1122
ARC	Ballhaus, W. F.	UNIV OF ARIZONA	NSG 2112	Seebass, A. R.	41	1123
ARC	Billingham, J.	UNIV OF ARIZONA	NSG 2205	Serkowski, K. M.	11	1124
ARC	Ragent, B.	UNIV ARKANSAS-FAYETV	NGL 04-001-007	Testerman, M. K.	41	1152
ARC	Johnson, D. A.	UNIV ARKANSAS-LTL RK	NCA 2-45601	Testerman, M. K.	41	1154
ARC	Lanyi, J. K.	UNIV CALIF-BERKELEY	NCA 2-50607	Packer, L.	51	1388
ARC	Pollack, J. B.	UNIV CALIF-BERKELEY	NCA 2-50702	Welch, W. J.	11	1389
ARC	Ellis, S.	UNIV CALIF-BERKELEY	NCA 2-50703	Nicholl, C.	53	1390
ARC	Linlor, W. I.	UNIV CALIF-BERKELEY	NCA 2-50704	Angelakos, D. J.	39	1391
ARC	Poppa, H. R.	UNIV CALIF-BERKELEY	NCA 2-50705	Everhart, T. E.	13	1392
ARC	Nelson, H. G.	UNIV CALIF-BERKELEY	NCA 2-50706	Finnie, I.	47	1393
ARC	Billman, K. W.	UNIV CALIF-BERKELEY	NCA 2-50707	Gustafson, T. K.	12	1394
ARC	MacElroy, R. D.	UNIV CALIF-BERKELEY	NCA 2-50710	Spear, R.	59	1395
ARC	Chapman, G. T.	UNIV CALIF-BERKELEY	NGR 05-003-451	Holt, M.	41	1407
ARC	Tanner, T. A., Jr.	UNIV CALIF-BERKELEY	NGR 05-003-471	LaPorte, T. R.	79	1410
ARC	Gillespie, C. M., Jr.	UNIV CALIF-BERKELEY	NGR 05-003-511	Townes, C. H	11	1411
ARC	Wrigley, R. C.	UNIV CALIF-BERKELEY	NSG 2003	Horne, A. J.	39	1417
ARC	Kourtides, D. A.	UNIV CALIF-BERKELEY	NSG 2026	Williamson, R. B.	44	1418
ARC	Wydeven, T. J.	UNIV CALIF-BERKELEY	NSG 2043	Bell, A. T.	43	1419
ARC	Cagliostro, D. E.	UNIV CALIF-BERKELEY	NSG 2084	Williamson, R. B.	12	1420
ARC	Ciffone, D. L.	UNIV CALIF-BERKELEY	NSG 2110	Wehausen, J. V.	41	1421
ARC	Gillespie, C. M., Jr.	UNIV CALIF-BERKELEY	NSG 2125	Muller, R. A.	11	1422
ARC	Waters, M. H.	UNIV CALIF-BERKELEY	NSG 2127	Kanafani, A.	41	1423
ARC	Billman, K. W.	UNIV CALIF-BERKELEY	NSG 2151	Gustafson, T. K.	13	1424
ARC	Evans, L. C.	UNIV CALIF-BERKELEY	NSG 2207	Colwell, R. N.	39	1425
ARC	Pollack, J. B.	UNIV CALIF-BERKELEY	NSG 2211	Welch, W. J.	11	1426
ARC	Ardema, M. D.	UNIV CALIF-BERKELEY	NSG 2242	Leitmann, G.	41	1427
ARC	Padrick, B. D.	UNIV CALIF-BERKELEY	NSG 2243	Colwell, R. A.	19	1428
ARC	Kennard, J. M.	UNIV CALIF-DAVIS	NAS 2-9539	Gary, N. E.	51	1443
ARC	Millard, J. P	UNIV CALIF-DAVIS	NCA 2-180607	Hatfield, J. L.	32	1447
ARC	Oyama, J.	UNIV CALIF-DAVIS	NCA 2-180701	Evans, J. W.	51	1448
ARC	Greenleaf, J. E.	UNIV CALIF-DAVIS	NCA 2-180703	Bernauer, E. M.	53	1449
ARC	Pollack, J. B.	UNIV CALIF-DAVIS	NCA 2-180704	White, B. R.	46	1450
ARC	Oyama, J.	UNIV CALIF-DAVIS	NGI 05-004-008	Smith, A. H	51	1451
ARC	Oyama, J.	UNIV CALIF-DAVIS	NSG 2234	Horowitz, B. A.	51	1452

ORIGINAL PAGE ..
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
ARC	Marvin, J. G.	UNIV CALIF-DAVIS	NSG 2256	Launder, B.	41	1453
ARC	Glazer, J. H.	UNIV CALIF-HASTINGS	NCA 2-280701	Forrester, R	99	1455
ARC	Mandel, A. D.	UNIV CALIF-IRVINE	NGR 05-041-012	Tilles, J. G.	52	1456
ARC	Hall, C. F	UNIV CALIF-L ANGELES	NAS 2-7251	Coleman, P. J , Jr	11	1459
ARC	Hall, C. F.	UNIV CALIF-L ANGELES	NAS 2-8808	Russell, C. T	19	1460
ARC	Hall, C. F.	UNIV CALIF-L ANGELES	NAS 2-9128	Kaula, W. H	11	1461
ARC	Hall, C F.	UNIV CALIF-L ANGELES	NAS 2-9131	Schubert, G.	11	1462
ARC	Hall, C. F	UNIV CALIF-L ANGELES	NAS 2-9491	Russell, C T	31	1463
ARC	Ellis, S.	UNIV CALIF-L ANGELES	NCA 2-390601	Parlow, A	51	1470
ARC	Grindeland, R E	UNIV CALIF L ANGELES	NCA 2-390701	Parlow, A	51	1471
ARC	Lincoln, K. A	UNIV CALIF-L ANGELES	NCA 2-390702	Knuth, E L.	13	1472
ARC	Ellis, S.	UNIV CALIF-L ANGELES	NCA 2-390801	Parlow, A.	61	1473
ARC	Daunton, N. G.	UNIV CALIF-L ANGELES	NGR 05-007-418	Markham, C H	51	1491
ARC	Chapman, G. T	UNIV CALIF-L ANGELES	NSG 2171	Cole, J. D	41	1493
ARC	Hall, C. F.	UNIV CALIF-SAN DIEGO	NAS 2-6552	Fillius, R W	11	1518
ARC	Greenleaf, J. E.	UNIV CALIF-SAN DIEGO	NGL 05-009-109	West, J. B	53	1535
ARC	Gillespie, C. M., Jr.	UNIV CALIF-SAN DIEGO	NGR 05-005-055	Soifer, B. T	11	1539
ARC	Winter, D. L.	UNIV CALIF-SAN DIEGO	NGR 05-009-083	Galambos, R.	61	1542
ARC	Sandler, H.	UNIV CALIF-SAN DIEGO	NGR 05-009-257	Baily, N. A.	52	1549
ARC	Daneilis, J V	UNIV CALIF-SAN FRAN	NCA 2-665602	Dallman, M S.	51	1566
ARC	Callahan, P. X	UNIV CALIF-SAN FRAN	NCA 2-665701	Asling, C W.	51	1567
ARC	Feller, D. D.	UNIV CALIF-SAN FRAN	NCA 2-665703	Searle, G L.	53	1568
ARC	Mehler, W. R.	UNIV CALIF-SAN FRAN	NCA 2-665706	Rapisardi, S C.	51	1569
ARC	Sandler, H.	UNIV CALIF-SAN FRAN	NCA 2-665707	Carlsson, E.	53	1570
ARC	Sandler, H	UNIV CALIF-SAN FRAN	NCA 2-665708	Glantz, S. A.	53	1571
ARC	Keil, L C.	UNIV CALIF-SAN FRAN	NCA 2-665709	Ramsay, D J	53	1572
ARC	Greenleaf, J. E.	UNIV CALIF-S BARBARA	NCA 2-680601	Rochelle, R. H	51	1575
ARC	Cassen, P.	UNIV CALIF-S BARBARA	NCA 2-680701	Peale, S. J	13	1576
ARC	Lanyi, J. K.	UNIV CALIF-S BARBARA	NCA 2-680702	Gibor, A.	51	1577
ARC	Nelson, H. G.	UNIV CALIF-S BARBARA	NSG 2222	Shanabarger, M R	47	1580
ARC	Hall, C. F	UNIV OF CHICAGO	NAS 2-6551	Simpson, J A	11	1992
ARC	Cameron, R M.	UNIV OF CHICAGO	NGR 14-001-211	Harper, D A , Jr.	11	2007
ARC	Daunton, N G.	UNIV OF CHICAGO	NGR 14-001-225	Goldberg, J M	51	2008
ARC	Gillespie, C M., Jr.	UNIV OF CHICAGO	NGR 14-001-227	Harper, D A , Jr	11	2009
ARC	Gillespie, C. M , Jr	UNIV OF CHICAGO	NSG 2057	Hildebrand, R H	11	2011
ARC	Burke, J. A.	UNIV OF CINCINNATI	NAS 2-7850	Tabakoff, W	41	3073
ARC	Inouye, M.	UNIV OF CINCINNATI	NSG 2268	Ghia, U	41	3079
ARC	Sinnott, D B	UNIV COLORADO-BOLDR	NAS 2-8816	Stewart, A I	19	1666
ARC	Hall, C F.	UNIV COLORADO-BOLDR	NAS 2-9477	Stewart, I	19	1667
ARC	Davis, S S	UNIV COLORADO-BOLDR	NSG 2128	Kadlec, R A	41	1693
ARC	Whitten, R C	UNIV COLORADO-BOLDR	NSG 2248	Castleman, A W	12	1694
ARC	Gregory, T J	UNIV OF CONNECTICUT	NSG 2155	White, P R	41	1737
ARC	Munoz, R. M	UNIV OF DENVER	NAS 2-8200	Murcray, D. G	13	1714
ARC	Patton, R. M	UNIV OF FLORIDA	NGR 10-005-057	Webb, W B	69	1860
ARC	Malcolm, G N.	UNIV OF FLORIDA	NSG 2120	Clarkson, M H	41	1865
ARC	Ginoza, H. S.	UNIV HOUSTON-HOUSTON	NAS 2-9072	Allred, J. C	51	3399
ARC	Pollack, J. B	UNIV ILLINOIS-CHICGO	NCA 2-330701	Krinsley, D	31	2018
ARC	Slye, R E	UNIV ILLINOIS-URBANA	NGR 14-005-202	Ray, R M	22	2030
ARC	Williams, B A	UNIV ILLINOIS-URBANA	NSG 2099	Heath, J I	51	2034
ARC	Wempe, T E	UNIV ILLINOIS-URBANA	NSG 2119	Rouse, W B	99	2035
ARC	Hall, C F	UNIV OF IOWA	NAS 2-6553	VanAllen, J A	11	2104
ARC	Seis, A.	UNIV OF KANSAS	NAS 2-9414	Muirhead, V U	31	2122
ARC	Linebarger, R. N	UNIV OF KANSAS	NCA 2-365701	Haralick, R M	21	2127
ARC	Seiff, A.	UNIV OF KANSAS	N A 2-365702	Muirhead, V U	41	2128
ARC	Galloway, J J	UNIV OF KANSAS	NSG 2145	Roskam, J.	41	2144
ARC	McCutcheon, E P	UNIV OF KENTUCKY	NAS 2-8883	Knapp, C F	46	2158
ARC	Laveless, J G.	UNIV OF KENTUCKY	NCA 2-370701	Kiser, R W	12	2163
ARC	Sharp, J C	UNIV OF KENTUCKY	NSG 2187	Smith, S D	51	2168

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Mehler, W. R.	UNIV OF LOUISVILLE	NSG 2067	Fuller, P. M.	51	2177
ARC	Sharp, J. C.	UNIV MARYLAND-BALT	NSG 2098	Grenell, R. G.	53	2233
ARC	Deal, P.	UNIV MARYLAND-COL PK	NCA 2-420703	Ponnamperuma, C. A.	51	2246
ARC	Boese, R. W.	UNIV MARYLAND-COL PK	NSG 2216	Wilkerson, T. D.	31	2276
ARC	Hall, C. F.	UNIV OF MASS-AMHERST	NAS 2-9129	McGill, G. E.	11	2496
ARC	Hall, C. F.	UNIV MICH-ANN ARBOR	NAS 2-9126	Donahue, T. M.	11	2510
ARC	Hall, C. F.	UNIV MICH-ANN ARBOR	NAS 2-9130	Nagy, A. F	11	2511
ARC	Mehler, W. R.	UNIV MICH-ANN ARBOR	NAS 2-9466	Quartron, G. C.	51	2512
ARC	Feistel, T. W.	UNIV MICH-ANN ARBOR	NSG 2018	Kroeger, R. A.	41	2551
ARC	Anderson, S. B.	UNIV MICH-ANN ARBOR	NSG 2113	Kroeger, K. A.	41	2552
ARC	Howard, J. C.	UNIV MICH-ANN ARBOR	NSG 2245	Howe, R. M.	41	2553
ARC	Thorley, G. W	U MINN-MNPLS-ST PAUL	NAS 2-8812	Nier, A. O.	31	2574
ARC	Holton, E. M.	UNIV MO-COLUMBIA	NGL 26-004-021	Musacchia, X. J.	51	2642
ARC	Holton, E. M	UNIV MO-COLUMBIA	NSG 2191	Musacchia, X. J.	51	2643
ARC	Quattrone, P D.	UNIV MO-COLUMBIA	NSG 2193	Winnick, J.	59	2644
ARC	Webbon, B. W.	UNIV MO-ROLLA	NGR 26-004-097	Mills, J. B.	59	2647
ARC	Nelson, H. G	UNIV NEBRASKA-LINCLN	NGR 28-004-025	Johnson, D. L	47	2675
ARC	Davis, S. S.	UNIV NEVADA-L VEGAS	NSG 2140	Fromme, J. A	41	2678
ARC	Scargle, J. D.	UNIV OREGON-EUGENE	NCA 2-587701	Holt, I.	13	3130
ARC	Whiting, E. E.	UNIV OREGON-EUGENE	NGR 38-003-036	Crasemann, B.	13	3133
ARC	Vorreiter, J. W.	UNIV OREGON-EUGENE	NSG 2208	Donnelly, R. J.	13	3134
ARC	Billingham, J.	UNIV OF PITTSBURGH	NSG 2116	Gatewood, G. D.	11	3231
ARC	Billingham, J.	UNIV OF PITTSBURGH	NSG 2117	Gatewood, G. D	11	3232
ARC	Mah, R W.	UNIV OF PITTSBURGH	NSG 2197	Gualtierotti, T	53	3233
ARC	Stallcop, J. R.	UNIV OF ROCHESTER	NSG 2198	George, T F.	13	2970
ARC	Taketa, S. T	UNIV SAN FRANCISCO	NAS 2-7059	Benton, E. V.	13	1586
ARC	Lawless, J. G	UNIV SAN FRANCISCO	NAS 2-9440	Furst, A. L.	51	1587
ARC	Souza, K. A.	UNIV SAN FRANCISCO	NAS 2-9504	Benton, E. V	13	1588
ARC	Kourtides, D. A.	UNIV SAN FRANCISCO	NSG 2039	Hilado, C J.	12	1593
ARC	Miquel, J.	UNIV SAN FRANCISCO	NSG 2063	Benton, E V.	51	1594
ARC	Glazer, J. H	UNIV OF SANTA CLARA	NCA 2-685402	Alexander G	79	1595
ARC	Hochstein, L. I.	UNIV OF SANTA CLARA	NCA 2-685614	Tomlinson, G A.	31	1596
ARC	Reynolds, R. T.	UNIV OF SANTA CLARA	NCA 2-685701	Barker, W A.	32	1597
ARC	Lawless, J. G	UNIV OF SANTA CLARA	NCA 2-685706	Sweeney, M A.	51	1598
ARC	Whitten, R. C.	UNIV OF SANTA CLARA	NCA 2-685707	McCormick, P. T.	13	1599
ARC	Chang, S.	UNIV OF SANTA CLARA	NCA 2-685708	White, D. H.	12	1600
ARC	Grindeland, R E	UNIV OF SANTA CLARA	NCA 2-685709	Fast, T.	51	1601
ARC	Wilson, D. F	UNIV OF SANTA CLARA	NCA 2-685710	Danielson, R E.	39	1602
ARC	Lumb, D R.	UNIV OF SANTA CLARA	NCA 2-685711	Healy, T J	39	1603
ARC	Dyal, P	UNIV OF SANTA CLARA	NCA 2-685713	Barker, W A.	13	1604
ARC	Williams, B A.	UNIV OF SANTA CLARA	NCA 2-685714	DEliseu, P N	51	1605
ARC	Doolin, B F	UNIV OF SANTA CLARA	NGR 05-017-010	Siljak, D D	49	1606
ARC	Black, D. C	UNIV OF SANTA CLARA	NGR 05-017-027	Greeley, R.	32	1607
ARC	Buell, D. A	UNIV OF SANTA CLARA	NGR 05-017-033	Cheng, D. Y	41	1608
ARC	Lile, M	UNIV OF SANTA CLARA	NSG 2036	Bruno, A. V	99	1610
ARC	Dyal, P.	UNIV OF SANTA CLARA	NSG 2075	Parkin, C. W	13	1611
ARC	Steger, J L	UNIV OF SANTA CLARA	NSG 2086	Vinokur, M.	13	1612
ARC	Hall, C. F.	UNIV OF SOUTHERN CAL	NAS 2-6558	Judge, D. L	11	1615
ARC	Hall, C F	UNIV OF SOUTHERN CAL	NAS 2-7969	Intriligator, D S	11	1616
ARC	Hruby, R. J	UNIV STHN COLORADO	NSG 2048	Jenkins, R	41	1732
ARC	Dannenberg, R I	UNIVERSITY OF SPLIT	NSG 7163	Slapnicar, P I	13	3757
ARC	Rubesin, M W.	UNIV TEXAS-ARLINGTON	NSG 2077	Payne, F R.	41	3423
ARC	Tanner, T A , Jr	UNIV TEXAS-AUSTIN	NSG 2065	Helmreich, R L	69	3448
ARC	Coe, C F	UNIV TEXAS-AUSTIN	NSG 2189	Panton, R L	41	3449
ARC	Hall, C F	UNIV TEXAS-DALLAS	NAS 2-8802	Hoffman, J H	31	3[illegible]3
ARC	Hall, C F	UNIV TEXAS-DALLAS	NAS 2-9485	Hoffman, J H	31	34[illegible]
ARC	McCutcheon, E P	UNIV TEXAS-GALVESTON	NGR 44-088-002	Stone, H L.	52	346
ARC	Johnson, R D	UNIV OF UTAH	NAS 2-9555	Ghandi, O M	51	3496

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
ARC	Wempe, T. E.	UNIV OF UTAH	NGR 45-003-108	Plummer, R. P.	45	3502
ARC	Holton, E. M.	UNIV OF VIRGINIA	NSG 2225	Pitts, G. C.	51	3607
ARC	Johnson, R. D.	UNIV OF WASHINGTON	NAS 2-9536	Guy, A. W.	51	3658
ARC	Lumb, D. R.	UNIV OF WASHINGTON	NCA 2-850701	Westerlund, F. V.	39	3662
ARC	Rose, W. C.	UNIV OF WASHINGTON	NGL 48-002-047	Childs, M. E.	41	3667
ARC	Steinle, F. W., Jr.	UNIV OF WASHINGTON	NGR 48-002-107	Russell, D. A.	41	3669
ARC	Rose, W. C.	UNIV OF WASHINGTON	NGR 48-002-141	Childs, M. E.	41	3670
ARC	Blanchard, W. B.	UNIV OF WASHINGTON	NSG 2131	Hodge, P. W.	19	3674
ARC	Smith, D. W.	UNIV OF WASHINGTON	NSG 2176	Joppa, R. G.	41	3675
ARC	Young, R. E.	UNIV OF WASHINGTON	NSG 2228	Holton, J. R.	31	3676
ARC	Hall, C. F.	UNIV WISC-MADISON	NAS 2-8813	Suomi, V. E.	31	3695
ARC	Hall, C.	UNIV WISC-MADISON	NAS 2-9480	Suomi, V. E.	31	3696
ARC	Holton, E. M.	UNIV WISC-MADISON	NCA 2-865701	Deluca, H.	51	3711
ARC	Young, D. R.	UNIV WISC-MADISON	NGR 50-002-051	Cameron, J. R.	52	3715
ARC	Mandel, A. D.	UNIV WISC-MADISON	NGR 50-002-191	Balish, E.	52	3718
ARC	Mandel, A. D.	UNIV WISC-MADISON	NSG 2002	Dick, E. C.	52	3721
ARC	Mandel, A. D.	UNIV WISC-MADISON	NSG 2104	Dick, E. C.	52	3722
ARC	Lowenstein, M.	UTAH STATE UNIV	NAS 2-9557	Jeppesen, H.	31	3506
ARC	Nelson, H. G.	VIRGINIA POLY INST	NSG 2038	Brinson, H. F.	47	3652
ARC	Poppa, H. R.	WASHINGTON ST UNIV	NCA 2-840701	Dickinson, J. T.	12	3688
ARC	Morse, H. A.	WASHINGTON UNIVERSTY	NAS 2-7613	Hohenemser, K. H.	41	2654
ARC	Waters, M. H.	WASHINGTON UNIVERSTY	NSG 2170	Haefner, L. F.	41	2661
ARC	Young, D. R.	WAYNE STATE UNIV	NSG 2008	Orne, D.	53	2569
ARC	Hicks, R. M.	WICHITA STATE UNIV	NSG 2134	Wentz, W. H., Jr.	41	2156
ARC	Young, D. R.	WRIGHT STATE UNIV	NSG 2034	Beljan, J. R.	53	3106
ARC	Winget, C. M.	XAVIER UNIV-LA	NGR 19-007-004	Ashman, P. U.	51	2198
ARC	Mandel, A. D.	YALE UNIVERSITY	NSG 218[illegible]	Evans, A. S.	52	1745
ARC	Cooper, D. M.	YORK UNIVERSITY	NSG 7223	Nicholls, R. W.	31	3745
ARC	Steinle, F. W., Jr.	YOUNGSTOWN STATE U	NCA 2-890701	Pejack, E. R.	41	3107
DFRC	Banner, R. D.	CAL POLY ST U-S LUIS	NSG 4014	Sandlin, D. R.	41	1209
DFRC	Anderson, K. F.	CAL STATE U-NRTHRDGE	NSG 4011	Abbott, R. J.	22	1223
DFRC	Szalai, K. J.	MASS INST OF TECH	NGL 22-009-548	Whitaker, H. D.	41	2403
DFRC	Iliff, K. W.	OREGON STATE UNIV	NSG 4013	Ruzicka, J.	41	3128
DFRC	Berry, D. T.	PURDUE UNIVERSITY	NSG 4003	Swaim, R. L.	41	2079
DFRC	Kordes, E. E.	STANFORD UNIVERSITY	NGL 05-020-498	McIntosh, S. C., Jr.	41	1313
DFRC	Edwards, J. W.	STANFORD UNIVERSITY	NSG 4002	DeBra, D. B.	41	1366
DFRC	Redless, H. A.	UNIV CALIF-L ANGELES	NGL 05-007-379	Balakrishnan, A. V.	41	1479
DFRC	Ehernberger, L. J.	UNIV CALIF-L ANGELES	NSG 4001	Wurtele, M. G.	31	1497
DFRC	Fields, R. A.	UNIV OF KANSAS	NSG 4006	Lenzen, K. H.	41	2146
DFRC	Deets, D. A.	UNIV OF KANSAS	NSG 4007	Grose, D. L.	41	2147
DFRC	Jenkins, J. M.	UNIV OF KANSAS	NSG 4008	Lenzen, K. H.	41	2148
DFRC	Saltzman, E. J.	UNIV OF KANSAS	NSG 4009	Muirhead, V. U.	49	2149
DFRC	Deets, D. A.	UNIV OF KANSAS	NSG 4012	Talley, H. E.	41	2150
GSFC	Tarlton, M. J.	ADELPHI UNIVERSITY	NAS 5-23688	Dooher, J. P.	39	2777
GSFC	Schmid, P. E.	ALCORN STATE UNIV	NGR 25-012-001	Paul, M. P.	31	2608
GSFC	Kupperian, J. E., Jr.	BOSTON UNIVERSITY	NSG 5055	Adelman, S. J.	11	2319
GSFC	Boldt, E. A.	BOWIE STATE COLLEGE	NGR 21-027-001	Tornabene, H. S.	11	2201
GSFC	Lefferts, E. J.	BOWIE STATE COLLEGE	NGR 21-027-004	Srivastava, S.	21	2202
GSFC	Caruso, A. J.	BOWIE STATE COLLEGE	NGR 21-027-010	Bhatia, M. S.	13	2203
GSFC	Gross, F. C.	BOWIE STATE COLLEGE	NSG 5009	Rock, M.	12	2205
GSFC	Davis, M. A.	CALIF INST OF TECH	NAS 5-11066	Stone, E. C.	13	1160
GSFC	Gallagher, W. E.	CALIF INST OF TECH	NAS 5-20721	Stone, E. C.	12	1161
GSFC	Hymowitz, E. W.	CALIF INST OF TECH	NAS 5-22555	Neugebauer, G.	11	1162
GSFC	Neupert, W. M.	CALIF INST OF TECH	NAS 5-22939	Zirin, H.	11	1163
GSFC	Nelsen, E. D.	CALIF INST OF TECH	NAS 5-22965	Ingersoll, A. P.	31	1164
GSFC	Wrublik, D. P.	CALIF INST OF TECH	NAS 5-23315	Garmire, G. P.	11	1165
GSFC	Weinreb, M. B.	CALIF INST OF TECH	NAS 5-23615	Garmire, G. P.	11	1166
GSFC	Bensimon, M.	CALIF INST OF TECH	NAS 5-23696	Leighton, R. B.		1167

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Stouffer, C. G.	CALIF INST OF TECH	NAS 5-24339	Garmire, G. P.	13	1168
GSFC	Bissell, E. E.	CALIF INST OF TECH	NGR 05-002-284	Garmire, G. P.	11	1187
GSFC	Lowman, P. D.	CALIF INST OF TECH	NSG 5058	Allen, C. R	39	1193
GSFC	Kupperian, J. E., Jr.	CALIF INST OF TECH	NSG 5197	Garmire, G. P.	11	1194
GSFC	Kupperian, J. E., Jr.	CALIF INST OF TECH	NSG 5208	Neugebauer, G.	11	1195
GSFC	Ollendorf, S.	CASE WESTERN RESERVE	NAS 5-24144	Kamotani, Y	46	3009
GSFC	Kupperian, J. E., Jr.	CASE WESTERN RESERVE	NSG 5136	Bidelman, W. P.	11	3035
GSFC	Stef, L. J.	CATHOLIC UNIVERSITY	NGR 09-005-103	Timmons, R. B	12	1762
GSFC	Dennis, B. R.	CATHOLIC UNIVERSITY	NSG 5066	Werntz, C.	13	1763
GSFC	Reinhardt, V. S.	CATHOLIC UNIVERSITY	NSG 5107	Major, F. G	13	1764
GSFC	McAvoy, N	CATHOLIC UNIVERSITY	NSG 5111	Lally, J.	13	1765
GSFC	Payne, W. A	CATHOLIC UNIVERSITY	NSG 5173	Hunt, J. B.	31	1766
GSFC	Canuto, V.	CITY COLLEGE OF N Y	NGL 33-013-040	Erlbach, E.	11	2785
GSFC	Hansen, J. E.	CITY COLLEGE OF N Y	NGR 33-013-086	Spar, J.	31	2786
GSFC	Kahle, D. R.	CITY COLLEGE OF N Y	NSG 5013	Schilling, D. L.	45	2789
GSFC	Thekaekara, M. P.	COLORADO STATE UNIV	NAS 5-22372	VonDerHaar, T. H.	41	1634
GSFC	Nelson, D.	COLORADO STATE UNIV	NAS 5-22959	VonDerHaar, T. H.	39	1635
GSFC	Theon, J. S.	COLORADO STATE UNIV	NGR 06-002-098	Reiter, E. R.	31	1645
GSFC	Curran, R. J.	COLORADO STATE UNIV	NGR 06-002-102	VonDerHaar, T. H.	31	1646
GSFC	Carpenter, L. H.	COLORADO STATE UNIV	NGR 06-002-191	Thompson, E. C.	32	1650
GSFC	Adler, R. F.	COLORADO STATE UNIV	NSG 5011	Cotton, W. R.	31	1660
GSFC	Neil, L. A.	COLORADO STATE UNIV	NSG 5073	Marlatt, W. E.	31	1661
GSFC	Rados, R. M.	COLORADO STATE UNIV	NSG 5105	Sinclair, P. C	31	1662
GSFC	Gemmell, J.	COLUMBIA UNIVERSITY	NAS 5-22408	Novick, R.	31	2797
GSFC	Laudadio, J. F.	COLUMBIA UNIVERSITY	NAS 5-22890	Novick, R	11	2798
GSFC	Jennings, N.	COLUMBIA UNIVERSITY	NAS 5-22936	Lewis, J. P	99	2799
GSFC	Weinreb, M. B	COLUMBIA UNIVERSITY	NAS 5-23623	Novick, R.	11	2800
GSFC	Schmid, P. E.	COLUMBIA UNIVERSITY	NAS 5-23727	Schwartz, M	45	2801
GSFC	Jennings, N.	COLUMBIA UNIVERSITY	NAS 5-24080	Lewis, J. P.	99	2802
GSFC	Gemmell, J	COLUMBIA UNIVERSITY	NAS 5-24152	Novick, R.	31	2803
GSFC	Bissell, E. F.	COLUMBIA UNIVERSITY	NGR 33-008-102	Novick, R	11	2809
GSFC	Smith, D. E.	COLUMBIA UNIVERSITY	NGR 33-008-146	Scholz, C. H	19	2810
GSFC	Thaddeus, P	COLUMBIA UNIVERSITY	NGR 33-008-191	Hartmann, S. R	11	2813
GSFC	Allenby, R. J.	COLUMBIA UNIVERSITY	NSG 5072	Bilham, R. G.	32	2818
GSFC	Kupperian, J. E., Jr.	COLUMBIA UNIVERSITY	NSG 5079	Wolff, R. S.	11	2819
GSFC	Ungar, S. G.	COLUMBIA UNIVERSITY	NSG 5080	High, C. J.	32	2820
GSFC	Kupperian, J. E., Jr	COLUMBIA UNIVERSITY	NSG 5138	Wolff, R. S.	11	2821
GSFC	Bissell, E. E.	COLUMBIA UNIVERSITY	NSG 5146	Novick, R.	13	2822
GSFC	Thaddeus, P	COLUMBIA UNIVERSITY	NSG 5163	Broecker, W. S.	11	2823
GSFC	Kupperian, J. E., Jr.	COLUMBIA UNIVERSITY	NSG 5168	Hayes, D. P	11	2824
GSFC	Kupperian, J. E., Jr.	COLUMBIA UNIVERSITY	NSG 5194	Novick, R.	11	2825
GSFC	Kupperian, J. E., Jr.	COLUMBIA UNIVERSITY	NSG 5200	Novick, R.	11	2826
GSFC	Berg, O. E.	CONCORDIA COL-MOORHD	NAS 5-23557	Bailey, C. F.	11	2572
GSFC	Ford, F.	COPPIN STATE COLLEGE	NSG 5051	McDermott, P. P.	12	2206
GSFC	Findlay, J. A	CORNELL UNIVERSITY	NAS 5-20705	Walker, J. C	13	2232
GSFC	Hymowitz, E. W.	CORNELL UNIVERSITY	NAS 5-22586	Houck, J. R	11	2833
GSFC	Conrath, B. J.	CORNELL UNIVERSITY	NAS 5-23236	Gierasch, P. J	13	2834
GSFC	Pirraglia, J. A.	CORNELL UNIVERSITY	NAS 5-23785	Gierasch, P. J	31	2835
GSFC	Smith, D. E.	CORNELL UNIVERSITY	NSG 5060	Turcotte, D. L	32	2864
GSFC	Jastrow, R	DARTMOUTH COLLEGE	NSG 5014	Huke, R. E	39	2683
GSFC	Hansen, J. E.	DARTMOUTH COLLEGE	NSG 5145	Decker, R. W	31	2684
GSFC	Aikin, A. C	DELAWARE STATE COL	NGR 08-002-005	Helmy, A. M.	13	1748
GSFC	Nelson, E. D.	DREXEL UNIVERSITY	NAS 5-22946	House, F. B	13	3151
GSFC	Adler, R. F	DREXEL UNIVERSITY	NSG 5162	Kreitzberg, C. W	31	3155
GSFC	Rodriquez, G. E	DUKE UNIVERSITY	NAS 5-22475	Wilson, T. G	45	2977
GSFC	Rodriguez, G. E	DUKE UNIVERSITY	NGL 34-001-001	Wilson, T. G	45	2978
GSFC	Heath, D. F	FAIRFIELD UNIVERSITY	NGR 07-010-002	McElaney, J. H	31	1734
GSFC	Schnetzler, C. C.	FLORIDA STATE UNIV	NAS 5-22578	Bute, B. F	32	1840

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Hobbs, R. W.	FLORIDA TECH UNIV	NSG 5110	Katzin, J. C.	11	1849
GSFC	Levine, D. M.	GEORGE WASHINGTON U	NAS 5-23809	Lang, R. H.	19	1768
GSFC	Morakis, J. C.	GEORGE WASHINGTON U	NSG 5109	Helgert, H. J.	49	1792
GSFC	Levine, D. M	GEORGIA INST OF TECH	NAS 5-20956	Robertson, D. W.	31	1906
GSFC	King, J. L.	GEORGIA INST OF TECH	NAS 5-23697	Dees, J. W.	45	1907
GSFC	King, J. L.	GEORGIA INST OF TECH	NAS 5-23710	Dees, J. W.	45	1908
GSFC	Schmidt, R. F.	GEORGIA INST OF TECH	NAS 5-23886	Leach, W. M., Jr	31	1909
GSFC	Levine, D. M.	GEORGIA INST OF TECH	NAS 5-24148	Wilson, C. S	31	1910
GSFC	King, J. L.	GEORGIA INST OF TECH	NSG 5012	McMillan, R. W.	45	1932
GSFC	King, J. L.	GEORGIA INST OF TECH	NSG 5082	Dees, J. W.	31	1933
GSFC	Chappelle, E.	HAHNEMANN MED COL	NAS 5-20865	Gutekunst, R. R	59	3157
GSFC	Spencer, C. W.	HARVARD UNIVERSITY	NAS 5-23199	McElroy, M. B.	31	2326
GSFC	Underhill, A. B.	HARVARD UNIVERSITY	NAS 5-23371	Dupree, A. K.	11	2327
GSFC	Donley, J. L.	HARVARD UNIVERSITY	NAS 5-23494	Reeves, E. M.	31	2328
GSFC	Spencer, N. W.	HARVARD UNIVERSITY	NAS 5-24134	McElroy, M. B.	31	2329
GSFC	McAvoy, N.	HARVARD UNIVERSITY	NGL 22-007-117	Bloembergen, N.	13	2337
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5099	Dupree, A. K.	11	2348
GSFC	Bissell, E. F.	HARVARD UNIVERSITY	NSG 5128	Reeves, E. M	13	2349
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5143	Flannery, B. P	11	2350
GSFC	Halem, M.	HARVARD UNIVERSITY	NSG 5160	Lindzen, R. S.	31	2351
GSFC	Reed, E. I	HARVARD UNIVERSITY	NSG 5176	Parkinson, W. H	13	2352
GSFC	Kupperian, J. E., Jr.	HARVARD UNIVERSITY	NSG 5191	Dupree, A. K.	11	2353
GSFC	Kupperian, J. E., Jr.	HOUSTON BAPTIST UNIV	NSG 5188	Morgan, T. H.	11	3330
GSFC	Alterescu, S.	HOWARD UNIVERSITY	NAS 5-23799	Chang, P.	52	1796
GSFC	Barrowman, J. S.	HOWARD UNIVERSITY	NAS 5-24242	Fan, D. N.	41	1797
GSFC	Hui, P. S.	HOWARD UNIVERSITY	NAS 5-24251	Choudhury, A. K.	49	1798
GSFC	Mundy, J. R.	HOWARD UNIVERSITY	NCA 5-14	Cox, F. I	49	1800
GSFC	Mundy, J. R.	HOWARD UNIVERSITY	NCA 5-21	Cox, F. L.	99	1801
GSFC	Yin, L. I	HOWARD UNIVERSITY	NGR 09-011-057	Tsang, T	13	1804
GSFC	Alterescu, S.	HOWARD UNIVERSITY	NSG 5016	Chang, P.	53	1810
GSFC	Stief, L. J.	HOWARD UNIVERSITY	NSG 5071	Jackson, W. M	12	1811
GSFC	Alterescu, S	HOWARD UNIVERSITY	NSG 5081	Deloatch, E. M	53	1812
GSFC	Picciolo, G. L	HOWARD UNIVERSITY	NSG 5104	Okrend, H. H	51	1813
GSFC	Friedman, D. S.	HOWARD UNIVERSITY	NSG 5127	Fischmann, F. J	52	1814
GSFC	Lyons, J. C	HOWARD UNIVERSITY	NSG 5158	Bhar, T. N	13	1815
GSFC	OKeefe, J. A	HOWARD UNIVERSITY	NSG 5186	Thorpe, A. N	13	1816
GSFC	Hobbs, R. W	INDIANA U-BLOOMINGTN	NAS 5-22987	Burkhead, M. S	11	2046
GSFC	Jupperian, J. E., Jr.	IOWA STATE UNIV	NSG 5199	Lamb, R. C	11	2102
GSFC	Gustafson, C.	JOHNS HOPKINS UNIV	NAS 5-11415	Doering, J. P	31	2209
GSFC	Boggess, A.	JOHNS HOPKINS UNIV	NAS 5-23316	Fastie, W. G	11	2210
GSFC	Benstmon, M.	JOHNS HOPKINS UNIV	NAS 5-23695	Fastie, W. G	11	2211
GSFC	Friedman, D. S	JOHNS HOPKINS UNIV	NAS 5-23732	Long, D	53	2212
GSFC	Wilson, L.	JOHNS HOPKINS UNIV	NAS 5-24236	Fastie, W. G	11	2213
GSFC	Bissell, E. F	JOHNS HOPKINS UNIV	NGR 21-001-001	Fastie, W. G	11	2216
GSFC	Maran, S. P	JOHNS HOPKINS UNIV	NSG 5065	Feldman, P. D	11	2220
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5067	Moos, H. W	11	2221
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5078	Henry, R. C	11	2222
GSFC	Marsh, J. G	JOHNS HOPKINS UNIV	NSG 5090	Marsh, B. D	32	2223
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5119	Henry, R. C	11	2224
GSFC	Mueller, J. I	JOHNS HOPKINS UNIV	NSG 5161	Phillips, O. M	33	2225
GSFC	Kupperian, J. E., Jr.	JOHNS HOPKINS UNIV	NSG 5184	Moos, H. W	11	2226
GSFC	Abshire, J. B.	JOHNS HOPKINS UNIV	NSG 5210	Davidson, F	45	2227
GSFC	Salomonson, V. V	KANSAS STATE UNIV	NSG 5101	Kanemasu, E. T	31	2120
GSFC	Alterescu, S.	LINCOLN UNIV-PA	NAS 5-23800	Frankowsky, J. W	53	3173
GSFC	Alterescu, S	LINCOLN UNIV-PA	NSG 5008	Frankowsky, J. W	52	3175
GSFC	Davis, M. A	MASS INST OF TECH	NAS 5-11062	Bridge, H. S	13	2372
GSFC	Piterski, N. J	MASS INST OF TECH	NAS 5-11450	Clark, G. W	11	2373
GSFC	Rathff, R. B	MASS INST OF TECH	NAS 5-21980	Staelin, D. H	31	2374

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Heath, D F	MASS INST OF TECH	NAS 5-22915	Cunnold D. M	41	2375
GSFC	Gloersen, P.	MASS INST OF TECH	NAS 5-22929	Staelin, D. H.	41	2376
GSFC	Weinreb, M. B.	MASS INST OF TECH	NAS 5-23624	Bradt, H. V.	11	2377
GSFC	Weinreb, M. B.	MASS INST OF TECH	NAS 5-23658	Rappaport, S. A.	11	2378
GSFC	Shue, J. C.	MASS INST OF TECH	NAS 5-23677	Staelin, D. H.	11	2379
GSFC	Mather, J. C.	MASS INST OF TECH	NAS 5-24096	Weiss, R	11	2380
GSFC	Shue, J. C.	MASS INST OF TECH	NAS 5-24[illegible]	Kong, J. A	45	2381
GSFC	Halem, M	MASS INST OF TECH	NGR 22-009-727	Stone, P. H	31	2421
GSFC	Bissell, E. L.	MASS INST OF TECH	NGR 22-009-730	Bradt, H. V.	11	2422
GSFC	McAvoy, N.	MASS INST OF TECH	NGR 22-009-741	Jayan, A.	13	2424
GSFC	Clark, T. A	MASS INST OF TECH	NGR 22-009-839	Counselman, C. C., III	99	2433
GSFC	Hansen, J. E	MASS INST OF TECH	NSG 5076	Rivas, F. K	11	2470
GSFC	Wexler, R	MASS INST OF TECH	NSG 5095	Auston, P. M	31	2471
GSFC	Hansen, J. E	MASS INST OF TECH	NSG 5113	Stone, P. H	31	2472
GSFC	Stone, R. G	MASS INST OF TECH	NSG 5150	Burke, B. F.	11	2473
GSFC	Schaefer, D. H.	MASS INST OF TECH	NSG 5157	McClellan, J. H.	45	2474
GSFC	Halem, M	MASS INST OF TECH	NSG 5166	Charney, J. G	31	2475
GSFC	Wexler, R	MASS INST OF TECH	NSG 5204	Austin, P. M	31	2476
GSFC	Alterescu, S.	MEHARRY MEDICAL COL	NAS 5-23801	Anderson, R. S	52	3266
GSFC	Kupperian, J. E., Jr	MIDDLEBURY COLLEGE	NSG 5198	Winkler, P. F	11	3513
GSFC	Alterescu, S	MOREHOUSE COLLEGE	NAS 5-23571	Norris, J. E	52	1936
GSFC	Friedman, D. S.	MORGAN STATE UNIV	NAS 5-23558	Collagan, R. B	49	2229
GSFC	Baker, G. R.	MORGAN STATE UNIV	NSG 5074	Hammond, E. C., Jr	11	2231
GSFC	Maran, S. P.	NEW MEX INST MINING	NCA 5-58	Hume, W	11	2736
GSFC	Maran, S. P.	NEW MEX INST MINING	NCA 5-59	Hume, W	11	2737
GSFC	Hobbs, R. W	NEW MEX INST MINING	NCA 5-64	Moore, L.	11	2738
GSFC	Hobbs, R. W	NEW MEX INST MINING	NCA 5-67	Moore, F	11	2739
GSFC	Hobbs, R. W	NEW MEX INST MINING	NCA 5-68	Moore, L.	11	2740
GSFC	Hobbs, R. W	NEW MEX INST MINING	NCA 5-69	Moore, L	11	2741
GSFC	Hobbs, R. W	NEW MEX INST MINING	NCA 5-71	Moore, L	11	2742
GSFC	Hobbs, R. W	NEW MEX INST MINING	NCA 5-72	Ecd, K. W	11	2743
GSFC	Pineus, R	NEW MEX ST U-LAS CR	NAS 5-20681	Sayles, A., Jr	19	2744
GSFC	Bissell, E. L	NEW MEX ST U-LAS CR	NAS 5-24241	Lawrence, H	49	2745
GSFC	Schroeder, P. B.	NEW YORK UNIVERSITY	NSG 5032	Schwartz, J. L	13	2884
GSFC	Halem, M	NEW YORK UNIVERSITY	NSG 5034	Isaacson, L	31	2885
GSFC	Halem, M	NEW YORK UNIVERSITY	NSG 5045	Hoffert, M. I		
GSFC	Halem, M.	NEW YORK UNIVERSITY	NSG 5130	Isaacson, L	31	2887
GSFC	Halem, M.	NEW YORK UNIVERSITY	NSG 5133	Hoffert, M. I	39	2888
GSFC	Whalen, A	NO CAR A&T STATE U	NAS 5-24101	Williams, L	45	2982
GSFC	McAvoy, N	N CAR CENTRAL UNIV	NSG 5120	Dutta, J. M	13	2988
GSFC	Kupperian, J. E., Jr	NORTHWESTERN UNIV	NSG 5195	Ulmer, M. P	11	1989
GSFC	Hirschmann, F	OHIO STATE UNIV	NAS 5-22[illegible]	Hodge, D. B	45	3050
GSFC	Zwally, H. J	OHIO STATE UNIV	NAS 5-23380	Rayner, J. N	39	3051
GSFC	Hirschmann, F	OHIO STATE UNIV	NAS 5-23650	Hodge, D. B	45	3052
GSFC	Marsh, J. G	OHIO STATE UNIV	NGR 36-008-161	Rapp, R. H.	32	3058
GSFC	Kupperian, J. E., Jr	OHIO STATE UNIV	NSG 5140	Colbo[illegible] G. W., II	11	3067
GSFC	Kupperian, J. E., Jr	OHIO STATE UNIV	NSG 5141	Slettebak, A	11	3068
GSFC	Bonavito, N	OHIO UNIVERSITY	NAS 5-20885	Tanuka, T	13	3070
GSFC	Kelsall, T. N	OLD DOMINION UNIV	NSG 5053	Becher J	19	3583
GSFC	Mueller, J	OREGON STATE UNIV	NAS 5-23736	Vaneveld, R. V	39	3121
GSFC	Podwysocki, M. H	PENN STATE U-UNIV PK	NAS 5-22822	Gold D. P	32	3176
GSFC	Alford, W.	PENN STATE U-UNIV PK	NAS 5-23859	McMurtry, G. J	39	3177
GSFC	Oseroff, H	PENN STATE U-UNIV PK	NAS 5-24264	Carlson, T. N	32	3178
GSFC	Golden, T. S	PENN STATE U-UNIV PK	NAS 5-24329	Feller, J. R	99	3179
GSFC	Allenby, R. J	PENN STATE U-UNIV PK	NSG 5185	Alexander, S. S	32	3207
GSFC	Adler, R. J	PENN STATE U-UNIV PK	NSG 5205	Anthes, R. A	41	3208
GSFC	Spencer, N. W	PENN STATE U-UNIV PK	NSG 5212	Nisbet, J. S	13	3209
GSFC	Pirraglia, J. A	POLY INST OF NY	NAS 5-24086	Gross, S. H	31	2891

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Sobieski, S.	PRINCETON UNIVERSITY	NAS 5-20833	Lowrance, J. L.	11	2698
GSFC	Stecker, T. P.	PRINCETON UNIVERSITY	NAS 5-22360	Jenkins, E. B.	32	2699
GSFC	Sobieski, S.	PRINCETON UNIVERSITY	NAS 5-22989	Schwarzschild, M.	11	2700
GSFC	Tycz, M.	PRINCETON UNIVERSITY	NAS 5-23386	Lowrance, J. L.	11	2701
GSFC	Kelsall, T.	PRINCETON UNIVERSITY	NAS 5-23387	Lowrance, J. L.	11	2702
GSFC	Kupperian, J. E.	PRINCETON UNIVERSITY	NAS 5-23576	Spitzer, L., Jr.	11	2703
GSFC	Mather, J. C.	PRINCETON UNIVERSITY	NAS 5-24100	Wilkinson, D. T.	11	2704
GSFC	Kelsall, T. N.	PRINCETON UNIVERSITY	NSG 5063	Lowrance, J. L.	49	2722
GSFC	Stonesifer, G. R.	PURDUE UNIVERSITY	NAS 5-20793	Bauer, M. E.	59	2056
GSFC	Langel, R. A	PURDUE UNIVERSITY	NAS 5-22816	Hinze, W. J.	32	2057
GSFC	Lynch, T. J.	PURDUE UNIVERSITY	NSG 5010	Wintz, P. A.	32	2080
GSFC	Meese, K. J.	RICE UNIVERSITY	NAS 5-9317	Anderson, H. R., Jr.	32	3339
GSFC	Taylor, H. A., Jr.	RICE UNIVERSITY	NAS 5-23338	Cloutier, P. A.	13	3340
GSFC	Kupperian, J. E., Jr.	RUTGERS U-N BRUNSWK	NSG 5195	Matilsky, T. A.	11	2731
GSFC	Halem, M.	ST U NY COL-PURCHASE	NSG 5077	Tenenbaum, J.	31	2965
GSFC	Rooser, R. G.	SAN DIEGO STATE UNIV	NAS 5-23249	Angione, R. J.	11	1228
GSFC	Reinhardt, V. S.	SO DAKOTA SCHL MINES	NAS 5-23470	Gruber, C. L.	45	3259
GSFC	Gordon, F., Jr.	SO DAKOTA STATE UNIV	NAS 5-20982	Schmer, F.	32	3260
GSFC	Gordon, F., Jr.	SO DAKOTA STATE UNIV	NAS 5-24206	Moore, D.	99	3261
GSFC	Davis, M. A.	STANFORD UNIVERSITY	NAS 5-20871	Helliwell, R. A.	13	1275
GSFC	Kant, S.	STANFORD UNIVERSITY	NAS 5-21960	Berra, D. B.	42	1276
GSFC	Ostrow, H.	STANFORD UNIVERSITY	NAS 5-23522	MacOvski, A.	19	1277
GSFC	Weinreb, M. B.	STANFORD UNIVERSITY	NAS 5-23618	Walker, A. B., Jr.	11	1278
GSFC	Broderick, J. C.	STANFORD UNIVERSITY	NAS 5-24232	Lyon, R. J.	32	1279
GSFC	Bissell, E. E.	STANFORD UNIVERSITY	NSG 5131	Walker, A. B., Jr.	13	1367
GSFC	Mangus, J. D.	STANFORD UNIVERSITY	NSG 5132	Walker, A. B., Jr.	19	1368
GSFC	Frey, H. V.	STATE UNIV NY-ALBANY	NAS 5-24094	Burke, K.	32	2922
GSFC	Hansen, J. E.	STATE U NY-STONY BRK	NGR 33-015-165	Owen, T.	31	2947
GSFC	Hansen, J. E.	STATE U NY-STONY BRK	NSG 5015	Hogan, J. S.	31	2952
GSFC	Stewart, R. W.	STATE U NY-STONY BRK	NSG 5102	Hogan, J. S.	31	2953
GSFC	Kerr, A. R.	STATE U NY-STONY BRK	NSG 5125	Kao, Y. H.	11	2954
GSFC	Stonesifer, G. R.	TEXAS A&M UNIVERSITY	NAS 5-20796	Rouse, J. W., Jr.	59	3362
GSFC	Gordon, F. J. Jr.	TEXAS A&M UNIVERSITY	NAS 5-22534	Blanchard, B. J.	39	3363
GSFC	Hovis, W. A.	TEXAS A&M UNIVERSITY	NAS 5-22966	El-Sayed, S. Z.	41	3364
GSFC	Damon, E. P.	TEXAS A&M UNIVERSITY	NAS 5-23827	Simmons, D. B.	22	3365
GSFC	Chang, A. T.	TEXAS A&M UNIVERSITY	NSG 5134	Blanchard, B. J.	32	3390
GSFC	Chang, A. T.	TEXAS A&M UNIVERSITY	NSG 5156	Blanchard, B. J.	32	3391
GSFC	Schmugge, T. J.	TEXAS A&M UNIVERSITY	NSG 5193	McFarland, M. J.	31	3392
GSFC	McAvoy, N.	UNION COLLEGE	NGR 33-032-004	Galantowicz, A.	13	2967
GSFC	Oseroff, H.	UNIV ALASKA-FAIRBNKS	NAS 5-20959	Stringer, W.	33	1068
GSFC	Hymowitz, E. W.	UNIV OF ARIZONA	NAS 5-22599	Low, F. J.	11	1089
GSFC	Browning, R. K.	UNIV OF ARIZONA	NAS 5-23176	Bowen, T.	11	1090
GSFC	Wilson, L.	UNIV OF ARIZONA	NAS 5-24308	Smith, B. A.	11	1091
GSFC	Dunkelman, L.	UNIV OF ARIZONA	NCA 5-19	Kassander, R. A.	31	1102
GSFC	Maran, S. P.	UNIV OF ARIZONA	NCA 5-62	Sonett, S. P.	11	1103
GSFC	Pearl, J.	UNIV OF ARIZONA	NCA 5-75	Fink, U. W.	31	1104
GSFC	Dunkelman, L.	UNIV OF ARIZONA	NCA 5-76	Martineck, S.	31	1105
GSFC	McAvoy, N.	UNIV OF ARIZONA	NSG 5022	Lamb, W. E., Jr.	13	1125
GSFC	LeVine, D. M.	UNIV OF ARIZONA	NSG 5023	Krider, E. P.	31	1126
GSFC	Hansen, J. E.	UNIV OF ARIZONA	NSG 5043	Gehrels, A. M.	11	1127
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-20079	Anderson, K. A.	13	1374
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-20080	Mozer, F. S.	13	1375
GSFC	Stonesifer, G. R.	UNIV CALIF-BERKELEY	NAS 5-20969	Colwell, R.	32	1376
GSFC	Gallagher, W. F.	UNIV CALIF-BERKELEY	NAS 5-20995	Heckman, H. H.	13	1377
GSFC	Davis, M. A.	UNIV CALIF-BERKELEY	NAS 5-22307	Anderson, K. A.	32	1378
GSFC	Weinreb, M. R.	UNIV CALIF-BERKELEY	NAS 5-23697	Bowyer, C. S.	11	1379
GSFC	Mather, J. C.	UNIV CALIF-BERKELEY	NAS 5-24105	Alvarez, L. W	11	1380
GSFC	Barrowman, J. S.	UNIV CALIF-BERKELEY	NAS 5-24165	Buffington, A.	13	1381

C-4

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
GSFC	Barrowman, J. S.	UNIV CALIF-BERKELEY	NAS 5-24166	Price, P. B.	13	1382
GSFC	Willis, S. E.	UNIV CALIF-BERKELEY	NAS 5-24189	Bowyer, C. S.	11	1383
GSFC	Bissell, E. E.	UNIV CALIF-BERKELEY	NGR 05-003-239	Moser, F. S.	13	1404
GSFC	Bissell, E. E	UNIV CALIF-BERKELEY	NGR 05-003-450	Bowyer, C. S.	11	1406
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-BERKELEY	NSG 5057	Bowyer, C. S.	11	1430
GSFC	Chang, A. T.	UNIV CALIF-BERKELEY	NSG 5093	Angelakos, D. J.	49	1431
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-BERKELEY	NSG 5114	Bowyer, C. S.	11	1432
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-BERKELEY	NSG 5164	Bowyer, C. S.	11	1433
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-BERKELEY	NSG 5201	Shull, J. M.	11	1434
GSFC	Nelson, D.	UNIV CALIF-DAVIS	NAS 5-22964	Coulson, K. L.	41	1445
GSFC	Salomonson, V. V.	UNIV CALIF-DAVIS	NSG 5092	Algazi, V. R.	39	1454
GSFC	Davis, M. A.	UNIV CALIF-L ANGELES	NAS 5-20064	Russell, C. T.	13	1464
GSFC	Corrigan, J P.	UNIV CALIF-L ANGELES	NAS 5-23702	McPherson, R. L.	39	1465
GSFC	Halem, M.	UNIV CALIF-L ANGELES	NGR 05-007-328	Arakawa, A.	31	1484
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5056	Peters, C. J.	11	1498
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5070	Jura, M. A.	11	1499
GSFC	Piterski, N. J.	UNIV CALIF-L ANGELES	NSG 5149	Margon, B. H.	11	1500
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5165	Margon, B. H.	11	1501
GSFC	Kupperian, J. E., Jr.	UNIV CALIF-L ANGELES	NSG 5169	Jura, M. A.	11	1502
GSFC	Reed, E. I.	UNIV CALIF-L ANGELES	NSG 5190	Thorne, R. M.	31	1503
GSFC	Temkin, A.	UNIV CALIF-RIVERSIDE	NGL 05-008-005	Poe, R. T.	13	1516
GSFC	Corrigan, J. P.	UNIV CALIF-SAN DIEGO	NAS 5-21055	McIlwain, C. E.	13	1519
GSFC	Stouffer, C. G	UNIV CALIF SAN DIEGO	NAS 5-22375	Peterson, L. E.	11	1520
GSFC	Hymowitz, E. W.	UNIV CALIF-SAN DIEGO	NAS 5-22556	Soifer, B. T.	11	1521
GSFC	Bartlett, R. O.	UNIV CALIF-SAN DIEGO	NAS 5-23481	McIlwain, C. E.	11	1522
GSFC	Corrigan, J. P.	UNIV CALIF-SAN DIEGO	NAS 5-23705	McIlwain, C. E.	31	1523
GSFC	Sobieski, S.	UNIV CALIF-SAN DIEGO	NGR 05-009-239	Beaver, E. A.	11	1547
GSFC	Carpenter, L.	UNIV CALIF-SAN DIEGO	NGR 05-009-246	Berger, J.	39	1548
GSFC	Shulman, A. R.	UNIV CALIF-SAN DIEGO	NGR 05-009-260	Lee, S. H.	13	1550
GSFC	Schaefer, D. H.	UNIV CALIF-SAN DIEGO	NGR 05-009-264	Lee, S. H.	49	1551
GSFC	Mead, G. D.	UNIV CALIF-SAN DIEGO	NSG 5089	Jordan T. H.	32	1558
GSFC	Barnes, W.	UNIV CALIF-S BARBARA	NSG 5106	Estes, J. E.	33	1581
GSFC	Salomonson, V. V.	UNIV CALIF-S BARBARA	NSG 5155	Ozier, J D.	32	1582
GSFC	Chang, A. T.	UNIV CALIF-S BARBARA	NSG 5170	Estes, J. E	32	1583
GSFC	Davis, M. A	UNIV OF CHICAGO	NAS 5-11067	Simpson, J. A.	13	1993
GSFC	Davis, M. A.	UNIV OF CHICAGO	NAS 5-20674	Simpson, J. A.	13	1994
GSFC	Wexler, R.	UNIV OF CHICAGO	NGR 14-001-008	Fujita, T. T.	31	2003
GSFC	Kupperian, J. E., Jr.	UNIV OF CHICAGO	NSG 5068	Parker, E. N.	11	2012
GSFC	Kupperian, J. E., Jr.	UNIV OF CHICAGO	NSG 5202	Simpson, J. A.	11	2013
GSFC	Lafleur, W.	UNIV OF CHILE	NAS 5-1925	Danyau, C. P	99	3746
GSFC	Spencer, N. W.	UNIV COLORADO BOLDR	NAS 5-11405	Stewart, A. I.	31	1668
GSFC	Broderick, J. C.	UNIV COLORADO-BOLDR	NAS 5-20914	Ives, J. D.	32	1669
GSFC	Szajna, E. F	UNIV COLORADO-BOLDR	NAS 5-20948	Krebs, P	59	1670
GSFC	Westrom, C.	UNIV COLORADO-BOLDR	NAS 5-22409	Brunet, E. C., Jr.	31	1671
GSFC	Underhill, A. B	UNIV COLORADO-BOLDR	NAS 5-22833	Conti P. S.	11	1672
GSFC	Boggess, A.	UNIV COLORADO-BOLDR	NAS 5-23274	Linsky, J. L.	11	1673
GSFC	Alexander, J K	UNIV COLORADO-BOLDR	NAS 5-23771	Warwick, J. W.	11	1674
GSFC	Corrigan, J. P	UNIV COLORADO-BOLDR	NAS 5-23808	Stewart, A. I.	31	1675
GSFC	Bissell, E. F	UNIV COLORADO-BOLDR	NGR 06-003-176	Lillie, C. F.	11	1686
GSFC	Kupperian, J E., Jr.	UNIV COLORADO-BOLDR	NSG 5098	Conti, P. S.	11	1695
GSFC	Bissell, E. E	UNIV COLORADO-BOLDR	NSG 5103	Barth, C. A.	19	1696
GSFC	Kelsall, T.	UNIV COLORADO-BOLDR	NSG 5124	Lawrence, G. M.	45	1697
GSFC	Kupperian, J. E., Jr.	UNIV COLORADO-BOLDR	NSG 5147	Barlow, M J	11	1698
GSFC	Reber, C. A.	UNIV COLORADO-BOLDR	NSG 5153	London, J.	31	1699
GSFC	Bissell, E. E.	UNIV COLORADO-BOLDR	NSG 5178	Rottman, G. T.	13	1700
GSFC	Kupperian, J. E., Jr	UNIV COLORADO-BOLDR	NSG 5211	Linsky, J. L.	11	1701
GSFC	Friedman, D. S.	UNIV OF CONNECTICUT	NAS 5-22539	Wilde, D. U.	99	1735
GSFC	Halem, M.	UNIV OF CONNECTICUT	NSG 5075	Bock, P.	31	1738

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
GSFC	Salomonson, V. V.	UNIV OF CONNECTICUT	NSG 5179	Bock, P.	32	1739
GSFC	Westrom, J. L.	UNIV DC-HARVARD GA	NGR 09-053-003	Bever, R. S.	39	1818
GSFC	Ormes, J. F.	UNIV DC-MT VERNON SQ	NGR 09-050-001	Whiteside, H.	13	1820
GSFC	Webster, W. H., Jr.	UNIV DC-MT VERNON SQ	NGR 09-050-003	Nottingham, W. C	11	1821
GSFC	Nava, D. E.	UNIV DC-MT VERNON SQ	NGR 09-050-019	Phelps, H. L.	39	1822
GSFC	Fuchs, A. J.	UNIV DC-MT VERNON SQ	NGR 09-050-020	Bakshi, J. S.	21	1823
GSFC	Lefferts, E. J.	UNIV DC-MT VERNON SQ	NSG 5122	Bakshi, J. S.	21	1824
GSFC	Mentall, J. E.	UNIV DC-MT VERNON SQ	NSG 5192	Morgan, H. D.	13	1825
GSFC	Hobbs, R. W.	UNIV DC-VAN NESS	NCA 5-63	Kasten, R.	31	1826
GSFC	Hobbs, R. W.	UNIV DC-VAN NESS	NCA 5-77	Kasten, R	11	1827
GSFC	Oseroff, H.	UNIV OF DELAWARE	NAS 5-20983	Klemas, V.	33	1749
GSFC	Kupperian, J. E., Jr.	UNIV OF DELAWARE	NSG 5144	Shipman, H. L.	11	1757
GSFC	Goldberg, R.	UNIV OF DENVER	NAS 5-22981	Barcus, J. R.	19	1715
GSFC	Hobbs, R. W.	UNIV OF DENVER	NAS 5-23190	Edrich, J.	13	1716
GSFC	Kupperian, J. E., Jr	UNIV OF DENVER	NSG 5135	Everhart, E	11	1728
GSFC	Heath, D. F.	UNIV OF FLORIDA	NAS 5-22908	Green, A. E	49	1851
GSFC	Kupperian, J. F., Jr.	UNIV OF FLORIDA	NSG 5116	Chen, K. W.	11	1868
GSFC	Bissell, E. E.	UNIV OF HAWAII-MANOA	NGR 12-001-075	McAllister, H. C	11	1963
GSFC	Kupperian, J. E., Jr.	UNIV OF HAWAII-MANOA	NSG 5096	Boesgaard, A. M.	11	1967
GSFC	Theon, J. S	UNIV OF HAWAII-MANOA	NSG 5159	Ramage, C. S	31	1968
GSFC	Schaefer, D. H	UNIV ILLINOIS-URBANA	NAS 5-24275	Slotnick, D. L	45	2022
GSFC	Bufton, J. L.	UNIV ILLINOIS-URBANA	NSG 5049	Gardner, C. S.	19	2039
GSFC	Spencer, N. W.	UNIV ILLINOIS-URBANA	NSG 5213	Sechrist, C. F., Jr	13	2040
GSFC	Davis, M. A	UNIV OF IOWA	NAS 5-11064	Frank, L. A.	13	2105
GSFC	White, C.	UNIV OF IOWA	NAS 5-11279	Gurnett, D. A.	11	2106
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-11431	Gurnett, D. A.	31	2107
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-20093	Gurnett, D. A.	13	2108
GSFC	Davis, M. A.	UNIV OF IOWA	NAS 5-20094	Frank, L. A.	13	2109
GSFC	Suddeth, D. H.	UNIV OF IOWA	NAS 5-23726	VanAllen, J. A.	13	2110
GSFC	Broderick, J. C.	UNIV OF KANSAS	NAS 5-20943	Haralick, R. M	32	2123
GSFC	Rango, A.	UNIV OF KANSAS	NAS 5-23777	Ulaby, F. T	45	2124
GSFC	Wexler, R.	UNIV OF KANSAS	NSG 5086	Eagleman, J. R.	31	2151
GSFC	Burdett, G. I	UNIV OF LOUISVILLE	NAS 5-23664	Shelton, D.	42	2172
GSFC	Davis, M. A.	UNIV MARYLAND-COL PK	NAS 5-11063	Gloecker, H. G.	13	2234
GSFC	Davis, M. A.	UNIV MARYLAND-COL PK	NAS 5-20062	Gloeckler, G	13	2235
GSFC	Stief, L. J.	UNIV MARYLAND-COL PK	NAS 5-20834	Ponnamperuma, C. A	12	2236
GSFC	Aikin, A. C	UNIV MARYLAND-COL PK	NAS 5-22537	Wilkerson, T. W.	31	2237
GSFC	Findlay, J. A.	UNIV MARYLAND-COL PK	NAS 5-22835	Messenger, C. J.	31	2238
GSFC	Barsky, J.	UNIV MARYLAND-COL PK	NAS 5-22878	Agrawala, A. K	22	2239
GSFC	Conrath, B. J.	UNIV MARYLAND-COL PK	NAS 5-23237	Ponnamperuma, C. A	13	2240
GSFC	Trombka, J. I.	UNIV MARYLAND-COL PK	NAS 5-23457	Sommer, S. I.	39	2241
GSFC	Barsky, J.	UNIV MARYLAND-COL PK	NAS 5-24092	Agrawala, A. K	22	2242
GSFC	Aikin, A. C	UNIV MARYLAND-COL PK	NAS 5-24130	McIlrath, T. J	31	2243
GSFC	Kelsall, T	UNIV MARYLAND-COL PK	NAS 5-24305	Currie, D. G	12	2244
GSFC	Klinglesmith, D. A.	UNIV MARYLAND-COL PK	NCA 5-13	Rosenfeld, A.	31	2247
GSFC	Klingelsmith, D. A	UNIV MARYLAND-COL PK	NCA 5-17	Rosenfeld, A.	11	2248
GSFC	Dunkelman, L.	UNIV MARYLAND-COL PK	NCA 5-18	Kassander, R. A	11	2249
GSFC	Fischel, D.	UNIV MARYLAND-COL PK	NCA 5-20	Rosenfeld, A	11	2250
GSFC	Slade, W.	UNIV MARYLAND-COL PK	NCA 5-22	Rosenfeld, A	11	2251
GSFC	Kastner, S. O.	UNIV MARYLAND-COL PK	NCA 5-65	Martin, F. W	13	2252
GSFC	Bauer, S. J	UNIV MARYLAND-COL PK	NGL 21-002-033	Smith, E. P	31	2254
GSFC	Hartle, R. F.	UNIV MARYLAND-COL PK	NGR 21-002-096	Matthews, D. L.	31	2258
GSFC	Ogilvie, K. W.	UNIV MARYLAND-COL PK	NGR 21-002-291	Coplan, M. A	13	2262
GSFC	Teegarden, B. J.	UNIV MARYLAND-COL PK	NGR 21-002-316	Gloeckler, G.	13	2263
GSFC	Stief, L. J.	UNIV MARYLAND-COL PK	NGR 21-002-368	Khanna, R. H.	32	2266
GSFC	Smith, D. E.	UNIV MARYLAND-COL PK	NGR 21-002-390	Currie, D. G	19	2267
GSFC	Rango, A	UNIV MARYLAND-COL PK	NGR 21-002-399	McCuen, R. H.	32	2268
GSFC	Bufton, J. L.	UNIV MARYLAND-COL PK	NGR 21-002-444	Currie, D. G.	13	2270

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Salomonson, V. V.	UNIV MARYLAND-COL PK	NSG 5017	Ragan, R. M.	32	2278
GSFC	Clark, T. A.	UNIV MARYLAND-COL PK	NSG 5035	Richard, J. P.	11	2279
GSFC	Degnan, J. J.	UNIV MARYLAND-COL PK	NSG 5042	Hochuli, U. E.	49	2280
GSFC	Cressy, P. J.	UNIV MARYLAND-COL PK	NSG 5047	Sommer, S. E.	32	2281
GSFC	Levine, D. M.	UNIV MARYLAND-COL PK	NSG 5048	Harger, R. O.	45	2282
GSFC	Kupperian, J. E., Jr.	UNIV MARYLAND-COL PK	NSG 5059	Bell, R. A.	11	2283
GSFC	OKeefe, J. A.	UNIV MARYLAND-COL PK	NSG 5083	Pai, S. I.	19	2284
GSFC	Theon, J. S.	UNIV MARYLAND-COL PK	NSG 5084	Thompson, O. E.	31	2285
GSFC	Trombka, J. I.	UNIV MARYLAND-COL PK	NSG 5094	Adler, I.	32	2286
GSFC	Wasilewski, P. J.	UNIV MARYLAND-COL PK	NSG 5112	Weidner, J. R.	19	2287
GSFC	Nava, D. F.	UNIV MARYLAND-COL PK	NSG 5121	Weidner, J. R.	32	2288
GSFC	McGarry, F. E.	UNIV MARYLAND-COL PK	NSG 5123	Basili, V. R.	49	2289
GSFC	Johnson, T. S.	UNIV MARYLAND-COL PK	NSG 5129	Alley, C. O.	13	2290
GSFC	Schmugge, T. J.	UNIV MARYLAND-COL PK	NSG 5137	Witczak, M. W.	32	2291
GSFC	Donn, B. D.	UNIV MARYLAND-COL PK	NSG 5172	Khanna, R. J.	12	2292
GSFC	Barnes, W. L.	UNIV MARYLAND-COL PK	NSG 5174	Wilkerson, T. D.	31	2293
GSFC	Bissell, E. E.	UNIV MARYLAND-COL PK	NSG 5177	Moore, J. H.	13	2294
GSFC	Theon, J. S.	UNIV MARYLAND-COL PK	NSG 5209	Thompson, O. E.	31	2295
GSFC	Fitzmaurice, M. W.	UNIV MD-EASTRN SHORE	NGR 21-119-001	Singh, G	19	2308
GSFC	Williams, D.	UNIV OF MIAMI	NAS 5-22417	Hiser, H. W.	19	1874
GSFC	Nelsen, E. D.	UNIV OF MIAMI	NAS 5-22963	Gordon, H. R.	31	1875
GSFC	Shiue, J. C.	UNIV OF MIAMI	S-55672A	Haskin, L. A.	45	1887
GSFC	Pelz, D.	UNIV MICH-ANN ARBOR	NAS 5-11376	Carignan, G. R.	31	2514
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-11380	Carignan, G. R.	31	2515
GSFC	Theon, J. S.	UNIV MICH-ANN ARBOR	NAS 5-20622	Horvath, J. J.	31	2516
GSFC	Cooley, J. E.	UNIV MICH-ANN ARBOR	NAS 5-20939	Carignan, G. R.	31	2517
GSFC	Krehbiel, J. F.	UNIV MICH-ANN ARBOR	NAS 5-22587	Donahue, T. M.	31	2518
GSFC	Way, S. H.	UNIV MICH-ANN ARBOR	NAS 5-22861	MacNee, A. B.	45	2519
GSFC	Trainor, J. H.	UNIV MICH-ANN ARBOR	NAS 5-22875	MacNee, A. B.	13	2520
GSFC	Gustafson, C.	UNIV MICH-ANN ARBOR	NAS 5-23006	Hays, P. B.	31	2521
GSFC	Spencer, N. W.	UNIV MICH-ANN ARBOR	NAS 5-23230	Carignan, G. R.	31	2522
GSFC	Hoffman, R. A.	UNIV MICH-ANN ARBOR	NAS 5-23791	Hays, P. B.	11	2523
GSFC	Spenser, N.	UNIV MICH-ANN ARBOR	NAS 5-24135	Carignan, G. R.	11	2524
GSFC	Bissell, E. E.	UNIV MICH-ANN ARBOR	NGR 23-005-360	Sharp, W. E.	13	2539
GSFC	Kupperian, J. E., Jr.	UNIV MICH-ANN ARBOR	NSG 5097	Donahue, T. M.	11	2556
GSFC	Kupperian, J. E., Jr.	UNIV MICH-ANN ARBOR	NSG 5117	Donahue, T. M.	11	2557
GSFC	Kupperian, J. E., Jr.	UNIV MICH-ANN ARBOR	NSG 5139	Atreya, S. K.	11	2558
GSFC	Stolarski, R. S.	UNIV MICH-ANN ARBOR	NSG 5171	Rusch, D. W.	31	2559
GSFC	Reed, E. I.	UNIV MICH-ANN ARBOR	NSG 5189	Stedman, D. H.	31	2560
GSFC	Kupperian, J. E., Jr.	UNIV MICH-ANN ARBOR	NSG 5206	Donahue, T. M.	11	2561
GSFC	Gemmell, J.	U MINN-MNPLS-ST PAUL	NAS 5-11310	Kellogg, P. J	11	2575
GSFC	Spencer, N. W.	U MINN-MNPLS-ST PAUL	NAS 5-11438	Nier, A. O.	31	2576
GSFC	Corrigan, J. P.	U MINN-MNPLS-ST PAUL	NAS 5-11687	Winckler, J. R.	49	2577
GSFC	Davis, M. A.	U MINN-MNPLS-ST PAUL	NAS 5-20837	Kellogg, P. J.	13	2578
GSFC	Barrowman, J. S.	U MINN-MNPLS-ST PAUL	NAS 5-23684	Waddington, C. J.	11	2579
GSFC	Corrigan, J. P.	U MINN-MNPLS-ST PAUL	NAS 5-23703	Winckler, J. R.	31	2580
GSFC	Bissell, E. E.	U MINN-MNPLS-ST PAUL	NSG 5088	Winckler, J. R.	13	2597
GSFC	Curran, R. J.	UNIV MO-COLUMBIA	NAS 5-20818	Schuster, B. G.	31	2638
GSFC	Kupperian, J. E., Jr.	UNIV MO-ST LOUIS	NSG 5151	Schwartz, R. D	11	2652
GSFC	Oseroff, H.	UNIV OF MONTANA	NAS 5-23891	Craighead, J. J.	39	2669
GSFC	Szajna, E. F.	UNIV NEBRASKA-LINCLN	NAS 5-20814	Carlson, M	49	2670
GSFC	Kalet, M. W.	UNIV NEBRASKA-LINCLN	NAS 5-22903	Samson, J. R.	13	2671
GSFC	Donley, J. L.	UNIV NEW HAMP-DURHAM	NAS 5-23493	Chupp, E. L.	11	2686
GSFC	Donley, J. L.	UNIV NEW HAMP-DURHAM	NAS 5-23761	Chupp, E. L.	31	2687
GSFC	Trainor, J. H.	UNIV NEW HAMP-DURHAM	NAS 5-23803	Webber, W. R.	11	2688
GSFC	Temkin, A.	UNIV OF NEW MEXICO	NCA 5-55	Beckel, C. L.	11	2765
GSFC	Jones, H. P.	UNIV OF NEW MEXICO	NCA 5-56	Regener, V. H.	11	2766
GSFC	Maran, S. P.	UNIV OF NEW MEXICO	NCA 5-57	StJohn, R.	11	2767

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Jones, H. P.	UNIV OF NEW MEXICO	NCA 5-66	Regener, V. H.	11	2768
GSFC	Lynch, T J	UNIV OF NOTRE DAME	NSG 5025	Massey, J L.	45	2088
GSFC	Durrani, S H.	UNIV OF PENNSYLVANIA	NAS 5-23479	Berkowitz, R. S.	45	3217
GSFC	Christie, C. J.	UNIV OF PERU	NASW 7	Unavailable	49	3756
GSFC	Kostiuk, T.	UNIV OF PITTSBURGH	NAS 5-22892	Falk, J.	43	3222
GSFC	Temkin, A.	UNIV OF PITTSBURGH	NGL 39-011-035	Gerjuoy, E.	13	3227
GSFC	Osantowski, J. F.	UNIV OF ROCHESTER	NAS 5-20028	Baumeister, P. W.	13	2968
GSFC	Kupperian, J. E., Jr.	UNIV OF ROCHESTER	NSG 5054	Savedoff, M P	11	2971
GSFC	Kutz, R L.	UNIV OF SOUTHERN CAL	NGL 05-018-118	Andrews, H. C	45	1623
GSFC	Bissell, E. F	UNIV OF SOUTHERN CAL	NSG 5108	Judge, D L.	13	1630
GSFC	Kunde, V G	UNIV TENNESSEE-KNOXV	NAS 5-20672	Fox, K.	31	3277
GSFC	Cancro, C. A.	UNIV TENNESSEE-KNOXV	NAS 5-23611	Pierce, J. F.	45	3278
GSFC	Golden, T. S.	UNIV TENNESSEE-KNOXV	NAS 5-23898	Snyder, W T.	39	3279
GSFC	Allen, W.	UNIV TENNESSEE-KNOXV	NAS 5-24250	Rochelle, R. W.	45	3280
GSFC	Schaefer, D. H	UNIV TENNESSEE-KNOXV	NSG 5002	Bodenheimer, R. E	22	3304
GSFC	Allen, W. K.	U TENNESSEE-MEMPHIS	NAS 5-22495	Rochelle, R. W	31	3306
GSFC	Hirschmann, E.	UNIV TEXAS-AUSTIN	NAS 5-22576	Stratton, A. W.	45	3425
GSFC	Kolenkiewicz, R.	UNIV TEXAS-AUSTIN	NGR 44-012-283	Tapley, B. D.	32	3445
GSFC	Kupperian, J. E., Jr	UNIV TEXAS-AUSTIN	NSG 5005	Lambert, D. L.	11	3451
GSFC	Fuchs, A. J	UNIV TEXAS-AUSTIN	NSG 5154	Tapley, B. D.	21	3452
GSFC	Kupperian, J. E., Jr	UNIV TEXAS-AUSTIN	NSG 5167	Smith, M. A.	11	3453
GSFC	Gustafson, C	UNIV TEXAS-DALLAS	NAS 5-11406	Hoffman, J. H	31	3465
GSFC	Gustafson, C	UNIV TEXAS-DALLAS	NAS 5-11407	Hanson, W. B.	31	3466
GSFC	Hoffman, R A.	UNIV TEXAS-DALLAS	NAS 5-23804	Winningham, J. D.	13	3467
GSFC	Bissell, E. F.	UNIV TEXAS-DALLAS	NGR 44-004-124	Heikkila, W. J.	13	3474
GSFC	Brace, L. H.	UNIV TEXAS-DALLAS	NSG 5085	Heikkila, W. J.	31	3475
GSFC	Brace, L. H.	UNIV TEXAS-DALLAS	NSG 5087	Anderson, D C.	31	3476
GSFC	Spencer, N W.	UNIV TEXAS-S ANTONIO	NSG 5214	Burch, J. L.	13	3488
GSFC	Kupperian, J E., Jr.	UNIV OF TOLEDO	NSG 5183	Molnar, M. R.	11	3098
GSFC	Kupperian, J. E., Jr.	UNIV OF TOLEDO	NSG 5207	Bopp, B. W.	11	3099
GSFC	Broderick, J. C.	UNIV OF UTAH	NAS 5-20955	Nackowski, M.	32	3497
GSFC	Oseroff, H	UNIV OF VIRGINIA	NAS 5-20999	Dolan, R.	39	3587
GSFC	Stecher, T. P.	UNIV OF VIRGINIA	NAS 5-22346	OConnell, R W.	11	3588
GSFC	Lamb, G. M	UNIV OF VIRGINIA	NAS 5-24218	Mattauch, R. J.	49	3589
GSFC	Sobieski, S.	UNIV OF VIRGINIA	NGR 47-005-204	Frederick, L. W.	11	3593
GSFC	Brandt, J. C.	UNIV OF WASHINGTON	NAS 5-22379	Bohm-Vitense, E	11	3659
GSFC	Eberstein, I	UNIV OF WASHINGTON	NSG 5039	Leovy, C. B.	31	3678
GSFC	Kupperian, J. E., Jr	UNIV OF WASHINGTON	NSG 5142	Wallerstein, G.	11	3679
GSFC	Squires, R. K.	UNIV WISC-MADISON	NAS 5-20974	Suomi, V E	13	3697
GSFC	Theon, J S.	UNIV WISC-MADISON	NAS 5-21798	Soumi, V. E.	31	3698
GSFC	Montgomery, A	UNIV WISC-MADISON	NAS 5-21965	Suomi, V. E.	31	3699
GSFC	Stecher, T P	UNIV WISC-MADISON	NAS 5-22349	Anderson, C. M	11	3700
GSFC	Gemmell, J	UNIV WISC-MADISON	NAS 5-22410	Kraushaar, W. L.	31	3701
GSFC	Sobieski, S.	UNIV WISC-MADISON	NAS 5-23285	Bless, R. C.	11	3702
GSFC	Greaves, J. R.	UNIV WISC-MADISON	NAS 5-23462	Suomi, V. E.	31	3703
GSFC	Friedman, D S	UNIV WISC-MADISON	NAS 5-23500	Houston, N.	53	3704
GSFC	Hasler, A. F	UNIV WISC-MADISON	NAS 5-23706	Suomi, V. E	31	3705
GSFC	Hibbard, W	UNIV WISC-MADISON	NAS 5-23748	Code, A. D	11	3706
GSFC	Theon, J. S	UNIV WISC-MADISON	NAS 5-24136	Suomi, V. E	31	3707
GSFC	Theon, J S	UNIV WISC-MADISON	NAS 5-24230	Weinman, J A	31	3708
GSFC	Bissell, E. F	UNIV WISC-MADISON	NGL 50-002-013	Code, A. D	11	3712
GSFC	Bissell, E. F	UNIV WISC-MADISON	NGL 50-002-044	Kraushaar, W. L	11	3713
GSFC	Halem, M	UNIV WISC-MADISON	NGR 50-002-215	Suomi, V. E	31	3719
GSFC	Kupperian, J. E., Jr	UNIV WISC-MADISON	NSG 5100	Savage, B D	11	3723
GSFC	Theon, J S.	UNIV WISC-MADISON	NSG 5126	Suomi, V E.	31	3724
GSFC	Halem, M.	UNIV WISC-MADISON	NSG 5152	Houghton, D. D	31	3725
GSFC	Kupperian, J. E., Jr.	UNIV WISC-MADISON	NSG 5180	Cassinelli J P	11	3726
GSFC	Kupperian, J. E., Jr.	UNIV WISC-MADISON	NSG 5181	Savage, B. D	11	3727

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
GSFC	Hirschmann, E.	VIRGINIA POLY INST	NAS 5-22577	Bostian, C. W.	45	3618
GSFC	Kupperian, J. E., Jr.	WASHINGTON UNIVERSTY	NSG 5187	Smith, W. H.	11	2662
GSFC	Reinhardt, V. S.	WILLIAMS COLLEGE	NAS 5-23520	Crampton, S. B.	13	2501
GSFC	Schaefer, D. H.	YALE UNIVERSITY	NGL 07-004-005	Barker, R. C.	45	1740
GSFC	Hansen, J. E.	YESHIVA UNIVERSITY	NGL 33-023-018	Finkelstein, D.	11	2974
JPL	England, C.	CAL STATE U-L ANGLES	NSG 7263	Gold, P. I.	46	1221
JPL	Somoano, R.	CLARK COLLEGE	NSG 7267	Sinha, O. P.	13	1895
JPL	Demore, W.	MOREHOUSE COLLEGE	NSG 7269	Hall, J.	31	1939
JPL	Huntress, W. T.	PAN AMERICAN UNIV	NGR 44-087-002	Glaser, F. M.	32	3332
JPL	Estabrook, F. B.	SO UNIV-BATON ROUGE	NGR 19-005-006	Yang, C. H.	11	2187
JPL	Bourke, R. D.	WESTERN NEW MEXICO U	NSG 902	Lundahl, C. R.	62	2776
JSC	Teasdale, W. E.	ALABAMA A&M UNIV	NAS 9-14770	Weathers, G. D.	45	1000
JSC	Leach, C. S.	BAYLOR COL OF MED	NAS 9-10537	Campbell, B. O.	52	3317
JSC	Leach, C. S.	BAYLOR COL OF MED	NAS 9-13540	DiFerrante, N.	59	3318
JSC	Hoffman, R. A.	BAYLOR COL OF MED	NAS 9-13737	Johnson, P. C.	53	3319
JSC	Kimzey, S. L.	BAYLOR COL OF MED	NAS 9-14322	Criswell, B. S.	52	3320
JSC	Kaplan, H. L.	BAYLOR COL OF MED	NAS 9-14407	Duncan, W. C.	52	3321
JSC	Homick, J. L.	BAYLOR COL OF MED	NAS 9-14546	Igarashi, M.	51	3322
JSC	Rummel, J. A.	BAYLOR COL OF MED	NAS 9-14661	Cardus, D.	53	3323
JSC	Kimzey, S. L.	BAYLOR COL OF MED	NAS 9-14662	Johnson, P. C.	52	3324
JSC	Leach, C. S.	BAYLOR COL OF MED	NAS 9-14715	Suki, W. N.	59	3325
JSC	Hoffler, G. W.	BAYLOR COL OF MED	NAS 9-15046	Alexander, J. K.	53	3326
JSC	Homick, J. L.	BRANDEIS UNIVERSITY	NAS 9-15147	Lackner, J. R.	59	2322
JSC	Phinney, W. C.	BRIGHAM YOUNG UNIV	NAS 9-14499	Laole, G. H.	32	3491
JSC	Harris, J. W.	BROWN UNIVERSITY	NGR 40-002-123	Rutherford, M. J.	32	3245
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-188	Wasserburg, G. J.	12	1177
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-190	Epstein, S.	13	1178
JSC	Harris, J. W.	CALIF INST OF TECH	NGL 05-002-338	Albee, A. L.	13	1180
JSC	Harris, J. W.	CALIF INST OF TECH	NGR 05-002-333	Tombrello, T. A.	13	1189
JSC	Harris, J. W.	CALIF INST OF TECH	NSG 9019	Ahrens, T. J.	19	1207
JSC	Byrns, J. H.	CITY COLLEGE OF N. Y.	NAS 9-13642	Pierson, W. J.	13	2783
JSC	Land, C. K.	CITY COLLEGE OF N. Y.	NAS 9-13940	Schilling, D. L.	45	2784
JSC	Bailey, J. V.	CLARKSON COL OF TECH	NSG 9059	McNulty, P. J.	13	2795
JSC	Reveley, W. F.	CLEMSON UNIV-CLEMSON	NAS 9-13669	Gaddis, J. L.	46	3250
JSC	Barnett, T. L.	COLORADO STATE UNIV	NAS 9-14467	Smith, J. A.	39	1640
JSC	Wilmarth, V.	COLORADO STATE UNIV	NAS 9-14765	Marlatt, W. E.	31	1641
JSC	Harris, J. W.	COLORADO STATE UNIV	NSG 9037	Patton, C. E.	13	1663
JSC	Hoffman, R. A.	COLORADO STATE UNIV	NSG 9045	Lett, J. T.	59	1664
JSC	Rambaut, P. C.	COLUMBIA UNIVERSITY	NAS 9-14931	Bassett, C. A.	53	2808
JSC	Harris, J. W.	COLUMBIA UNIVERSITY	NGR 33-008-177	Horai, K.	13	2811
JSC	Harris, J. W.	COLUMBIA UNIVERSITY	NGR 33-008-199	Ridley, W. I.	12	2814
JSC	Morrison, D. R.	CORNELL UNIVERSITY	NAS 9-15378	Rubin, A. L.	59	2836
JSC	Harris, J. W.	CORNELL UNIVERSITY	NGR 33-010-137	Gold, T.	13	2847
JSC	Browne, I. D.	FORT LEWIS COLLEGE	NAS 9-15276	Baker, J. R.	13	1665
JSC	Joyce, A. T.	GEORGIA INST OF TECH	NAS 9-15283	Zimmer, R. P.	39	1920
JSC	Rummel, J. A.	HARDING COLLEGE	NAS 9-14921	Olree, H. D.	53	1148
JSC	Huffstetler, W. J.	HARVARD UNIVERSITY	NAS 9-15326	Sulzman, F. M.	51	2332
JSC	Harris, J. W.	HARVARD UNIVERSITY	NGL 22-007-247	Hays, J. F.	12	2339
JSC	Leach, C. S.	HARVARD UNIVERSITY	NSG 9054	Moore-Ede, M. C.	53	2360
JSC	Kondo, Y.	HOUSTON BAPTIST UNIV	NGR 44-081-001	Modisette, J. L.	11	3328
JSC	Kondo, Y.	HOUSTON BAPTIST UNIV	NGR 44-081-005	Modisette, J. L.	11	3329
JSC	Potter, A. E.	HOUSTON BAPTIST UNIV	NSG 9038	Morgan, T. H.	11	3331
JSC	Savely, R. T.	HOWARD UNIVERSITY	NSG 9010	Choudhury, A. K.	45	1817
JSC	Harris, J. W.	INDIANA U-BLOOMINGTN	NGR 15-003-105	Meinschein, W. G.	12	2051
JSC	Barnett, T. L.	KANSAS STATE UNIV	NAS 9-14533	Feyerherm, A. M.	39	2116
JSC	Barnett, T. L.	KANSAS STATE UNIV	NAS 9-14899	Kanemasu, E. T.	31	2117
JSC	Harris, J. W.	LEHIGH UNIVERSITY	NGR 39-007-056	Goldstein, J. I.	12	3169
JSC	Kondo, Y.	LEHIGH UNIVERSITY	NGR 39-007-061	McCluskey, G. E., Jr.	11	3170

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
JSC	Harris, J. W.	LEHIGH UNIVERSITY	NGR 39-007-064	Sclar, C. B.	13	3171
JSC	Giuli, R. T	LA STATE U-SHREVEPT	NAS 9-9317	Moss, T. A.	11	2184
JSC	Eichelman, W. F	MASS INST OF TECH	NAS 9-12334	Toksoz, M. N.	31	2389
JSC	Smith, M. C., Jr.	MASS INST OF TECH	NAS 9-12485	Karel, M.	53	2390
JSC	Rambaut, P. C.	MASS INST OF TECH	NAS 9-15194	Munro, H. N.	59	2391
JSC	Luczkowski, S. M.	MASS INST OF TECH	NAS 9-15343	Young, L. R	59	2392
JSC	Harris, J. W	MASS INST OF TECH	NGR 22-009-540	Simmons, M. G	13	2413
JSC	Harris, J. W.	MASS INST OF TECH	NGR 22-009-551	Burns, R. G.	12	2414
JSC	Harris, J. W	MASS INST OF TECH	NGR 22-009-646	Uhlmann, D. R.	47	2417
JSC	Harris, J. W.	MASS INST OF TECH	NSG 9057	Brecher, A	32	2492
JSC	Shack, P. E.	MEMPHIS ST UNIV	NAS 9-13878	Morris, C. F.	45	3268
JSC	Homick, J. L.	MIAMI UNIVERSITY	NAS 9-14538	Parker, D. E	59	3044
JSC	Nitschke, H. A.	NEW MEX ST U-LAS CR	NAS 9-95469	Carver, K	39	2748
JSC	Fenner, R. G.	NEW MEX ST U-LAS CR	NAS 9-95470	Lackner, J. R.	39	2749
JSC	Nitschke, H. A.	NEW MEX ST U-LAS CR	NAS 9-95471	Carver, K. R	39	2750
JSC	Fenner, R. G.	NEW MEX ST U-LAS CR	NAS 9-95477	Henry, D. G	45	2751
JSC	Nitschke, H. A.	NEW MEX ST U-LAS CR	NAS 9-95479	Henry, D. G	39	2752
JSC	Nitschke, H. A.	NEW MEX ST U-LAS CR	NAS 9-95482	Henry, [illegible] G	39	2753
JSC	Nachtwey, D. S.	OREGON STATE UNIV	NAS 9-14860	VanDyke, H	51	3122
JSC	Harris, J. W.	OREGON STATE UNIV	NGL 38-002-039	Schmitt, R. A	13	3126
JSC	Heydorn, R. P	PAN AMERICAN UNIV	NSG 9033	Lemaster, L. W	39	3334
JSC	Heydorn, R. P.	PAN AMERICAN UNIV	NSG 9053	McCabe, T. F.	39	3335
JSC	Browne, D.	PRAIRIE VIEW A&M U	NSG 9006	Brams, E. A	39	3337
JSC	Harris, J. W	PRINCETON UNIVERSITY	NGL 31-001-283	Hollister, L. S	11	2711
JSC	Erickson, J. D.	PURDUE UNIVERSITY	NAS 9-14970	Landgrebe, D. A	39	2060
JSC	Childs, L. F.	PURDUE UNIVERSITY	NAS 9-15081	Bauer, M. E.	39	2061
JSC	Joosten, R. E.	PURDUE UNIVERSITY	NAS 9-15325	Mroczynski, R	39	2062
JSC	Harris, J. W.	PURDUE UNIVERSITY	NGR 15-005-157	Meyer, H. O.	13	2066
JSC	Kuznetz, L. H.	RENSSELAER POLY-NY	NAS 9-15109	Modest, M. F	47	2908
JSC	Kissinger, L. D.	RICE UNIVERSITY	NAS 9-11827	Davis, S. H	43	3343
JSC	Arndt, G. D.	RICE UNIVERSITY	NAS 9-15212	Gordon, W. E.	31	3344
JSC	Collier, F	RICE UNIVERSITY	NAS [illegible]-15274	Wierum, F. A.	46	3345
JSC	Harris, J. W	RICE UNIVERSITY	NGL 44-006-127	Heymann, D.	32	3348
JSC	Potter, A. E.	RICE UNIVERSITY	NGR 44-006-156	Stebbings, R. F	13	3350
JSC	Horz, F	ST MARY'S UNIVERSITY	NSG 9039	Hanss, R. E.	32	3357
JSC	Downs, J	SO DAKOTA STATE UNIV	NAS 9-15345	Westin, E. C.	32	3262
JSC	Echelkamp, R. E.	SO UNIV-BATON ROUGE	NSG 9030	Grewal, G. S.	45	2194
JSC	Leach, C. S.	STANFORD UNIVERSITY	NAS 9-14716	Davidson, J. M	59	1285
JSC	McCoy, J. E.	STANFORD UNIVERSITY	NAS 9-15342	Helliwell, R. A.	19	1286
JSC	Morrison, D. R.	STATE UNIV NY-ALBANY	NAS 9-15365	VanOss, C. J	59	2925
JSC	Rummel, J. A.	STATE UNIV NY-ALBANY	NSG 9028	Farhi, L. E.	51	2934
JSC	Harris, J. W.	STATE UNIV NY-BUFFAL	NGL 33-183-013	Cadenhead, D. A	12	2936
JSC	Harris, J. W	STATE U NY-STONY BRK	NGL 33-015-130	Bence, A. E	13	2942
JSC	Harris, J. W.	STATE U NY-STONY BRK	NGL 33-015-174	Schaeffer, O. A.	12	2943
JSC	Harris, J. W.	STATE U NY-STONY BRK	NSG 9013	Pao, M. T.	32	2962
JSC	Harris, J. W.	STATE U NY-STONY BRK	NSG 9044	Papike, J. J.	13	2963
JSC	Nachtwey, D. S.	TEMPLE UNIVERSITY	NAS 9-14979	Urback, F	51	3215
JSC	Nachtwey, D. S.	TEMPLE UNIVERSITY	NAS 9-15207	Urbach, F	53	3216
JSC	Easley, R. F	TENNESSEE STATE UNIV	NAS 9-15441	Sampson, C	99	3269
JSC	Smith, M. C., Jr.	TEXAS A&M UNIVERSITY	NAS 9-12434	Burns, F. L.	59	3370
JSC	Broune, I. D	TEXAS A&M UNIVERSITY	NAS 9-13894	Hartley, H. O	22	3371
JSC	Buras, N. T.	TEXAS A&M UNIVERSITY	NAS 9-13904	Rouse, J. W., Jr	39	3372
JSC	Barnett, T. L	TEXAS A&M UNIVERSITY	NAS 9-14470	Harlan, J. C	39	3373
JSC	Hilje, E. R	TEXAS A&M UNIVERSITY	NAS 9-14478	Cavin, R. K., III	41	3374
JSC	Nolin, F. D.	TEXAS A&M UNIVERSITY	NAS 9-14556	Guseman, L. F., Jr	22	3375
JSC	Browne, I. D.	TEXAS A&M UNIVERSITY	NAS 9-14689	Guseman, L. F., Jr	22	3376
JSC	Hatcher, N. W.	TEXAS A&M UNIVERSITY	NAS 9-14817	Newton, R. W	13	3377
JSC	Blanchard, D.	TEXAS A&M UNIVERSITY	NAS 9-14828	Randall, J. D.	39	3378

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
JSC	Buras, N. T.	TEXAS A&M UNIVERSITY	NAS 9-14875	Schell, J. A.	32	3379
JSC	Hoffman, R. A.	TEXAS A&M UNIVERSITY	NAS 9-15175	Kleerekoper, H	51	3380
JSC	Farris, G. W.	TEXAS A&M UNIVERSITY	NAS 9-15311	Hulse, W. C.	45	3381
JSC	Day, J. L.	TEXAS TECH UNIV	NAS 9-11162	Portnoy, W. M.	45	3396
JSC	Jackson, M. M.	TUFTS UNIVERSITY	NSG 9046	Spodick, D. H.	53	2494
JSC	French, B. O.	TUSKEGEE INSTITUTE	NAS 9-13844	Sellers, J. P., Jr.	46	1031
JSC	Kimsey, S L.	UNIV OF ARIZONA	NAS 9-14692	Bartels, P. H.	59	1098
JSC	Harris, J. W.	UNIV OF ARIZONA	NGR 03-002-388	Drake, M. J.	12	1121
JSC	Demel, K. E.	UNIV ARKANSAS-FAYETV	NAS 9-14251	Waite, W. P.	19	1151
JSC	Garcia, J. G.	UNIV CALIF-BERKELEY	NAS 9-14565	Nichols, J. D.	39	1387
JSC	Harris, J. W.	UNIV CALIF-BERKELEY	NGL 05-003-409	Reynolds, J. H.	13	1401
JSC	Harris, J. W.	UNIV CALIF-BERKELEY	NGL 05-003-410	Price, P. B.	12	1402
JSC	Rambaut, P. C.	UNIV CALIF-DAVIS	NAS 9-15203	Vogel, J. M.	53	1446
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGL 05-007-367	Wasson, J. T.	12	1478
JSC	Harris, J. W.	UNIV CALIF-L ANGELES	NGR 05-007-289	Kaplan, I. R.	13	1482
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NAS 9-15381	Arnold, J. R.	12	1527
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-148	Arnold, J. R.	12	1536
JSC	Harris, J. W.	UNIV CALIF-SAN DIEGO	NGL 05-009-150	Marti, K.	12	1537
JSC	Homick, J. L.	UNIV CALIF-SAN DIEGO	NSG 9048	Bullock, T. H.	53	1565
JSC	Krishen, K	UNIV CALIF-S BARBARA	NAS 9-14816	Simonett, D. S.	33	1574
JSC	Harris, J. W.	UNIV CALIF-S BARBARA	NGR 05-010-081	Tilton, G. R.	32	1579
JSC	Harris, J. W	UNIV CALIF-S BARBARA	NSG 9020	Fuller, M. D.	19	1584
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-167	Anders, E.	13	1999
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-169	Clayton, R. N.	12	2000
JSC	Harris, J. W.	UNIV OF CHICAGO	NGL 14-001-171	Smith, J. V.	13	2001
JSC	Harris, J W.	UNIV COLORADO-BOLDR	NGR 06-003-181	Larson, E. E.	13	1688
JSC	Harris, J. W.	UNIV COLORADO-BOLDR	NSG 9036	Spetzler, H. A.	32	1712
JSC	Booher, C. R	UNIV OF DENVER	NAS 9-15206	Venditti, F. P.	45	1717
JSC	Nachtwey, D. S.	UNIV OF FLORIDA	NAS 9-15114	Green, A. E.	51	1853
JSC	Sauer, R. L.	UNIV HOUSTON-HOUSTON	NAS 9-11676	Cox, J. E.	59	3400
JSC	Kyle, H. C	UNIV HOUSTON-HOUSTON	NAS 9-11845	Hayre, H. S.	49	3401
JSC	Golden, R. L.	UNIV HOUSTON-HOUSTON	NAS 9-14209	Sheldon, W. R.	11	3402
JSC	Schneider, H J.	UNIV HOUSTON-HOUSTON	NAS 9-14534	Zlatkis, A.	53	3403
JSC	Schneider, H. J.	UNIV HOUSTON-HOUSTON	NAS 9-14629	Zlatkis, A.	52	3404
JSC	Graves, R. C.	UNIV HOUSTON-HOUSTON	NAS 9-14857	Henney, H. R., Jr.	51	3405
JSC	Browne, I. D.	UNIV HOUSTON-HOUSTON	NAS 9-15000	Decell, H P.	21	3406
JSC	Eggleston, J. M.	UNIV HOUSTON-HOUSTON	NAS 9-15193	Michalopoulos, C. O.	41	3407
JSC	Cohen, J. H.	UNIV HOUSTON-HOUSTON	NAS 9-15215	Ostrofsky, B.	21	3408
JSC	Kondo, Y.	UNIV HOUSTON-HOUSTON	NGR 44-005-137	Hildebrandt, A. F	13	3413
JSC	Harris, J. W.	UNIV HOUSTON-CL LAKE	NSG 9043	Blanford, G F.	13	3422
JSC	Melgares, E	UNIV ILLINOIS-URBANA	NAS 9-15328	Voss, F. W.	59	2023
JSC	Hull, W E	UNIV OF IOWA	NSG 9060	Abboud, F. M.	53	2115
JSC	Demel, K. J.	UNIV OF KANSAS	NAS 9-14052	Ulaby, F. T.	39	2125
JSC	Hatcher, N. M	UNIV OF KANSAS	NAS 9-15003	Ulaby, F. T.	32	2126
JSC	Jackson, M. M	UNIV OF KENTUCKY	NAS 9-14392	Lafferty, J. F.	46	2161
JSC	Harris, J. W	UNIV OF KENTUCKY	NGR 18-001-058	Ehmann, W. D.	13	2164
JSC	Hoffman, R A.	UNIV OF LOUISVILLE	NAS 9-14632	Keefe, J. R.	51	2174
JSC	Hoffman, R A.	UNIV OF LOUISVILLE	NAS 9-15213	Keefe, J. R	59	2175
JSC	Harris, J W.	UNIV OF MASS-AMHERST	NGL 22-010-089	Haggerty, S E.	13	2499
JSC	Leach, C S.	UNIV OF MIAMI	NGR 10-007-097	Epstein, M.	52	1881
JSC	Koons, F. D.	UNIV MICH-ANN ARBOR	NAS 9-14609	Anderson, J. G	31	2530
JSC	Homick, J. L.	UNIV MICH-ANN ARBOR	NAS 9-15244	Anderson, D	53	2531
JSC	Homick, J. L.	UNIV MICH-ANN ARBOR	NAS 9-15375	Anderson, D J.	59	2532
JSC	Hoffman, R. A.	UNIV MICH-ANN ARBOR	NSG 9047	Ross, M D.	51	2566
JSC	Smith, M C., Jr	U MINN-MNPLS-ST PAUL	NAS 9-12560	LaBuza, T. P.	59	2583
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NGL 24-005-225	Alexander, F C., Jr.	13	2587
JSC	Harris, J W.	U MINN-MNPLS-ST PAUL	NGR 24-005-223	Murthy, V. R	13	2590
JSC	Harris, J. W	U MINN-MNPLS-ST PAUL	NGR 24-005-248	Banerjee, S K	32	2591

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NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
JSC	Harris, J. W.	U MINN-MNPLS-ST PAUL	NSG 9050	Weiblen, P. W.	32	2606
JSC	Dawson, C. T.	UNIV MO-ROLLA	NAS 9-14848	Tranter, W. H.	45	2646
JSC	Harris, J. W.	UNIV OF NEW MEXICO	NGL 32-004-063	Keil, K.	12	2770
JSC	Leach, C.	UNIV N CAR-CHPL HILL	NAS 9-14697	Gitelman, H. J.	59	3006
JSC	Harris, J. W.	UNIV OREGON-EUGENE	NGL 38-003-022	Weill, D. F.	13	3131
JSC	Horrigan, D. J.	UNIV OF PENNSYLVANIA	NSG 9011	Lambertson, C. J.	51	3221
JSC	Harris, J. W.	UNIV OF PITTSBURGH	NSG 9056	Hapke, B. W.	13	3240
JSC	Bailey, J. V.	UNIV SAN FRANCISCO	NAS 9-12466	Benton, E. V.	51	1590
JSC	Bailey, J. V.	UNIV SAN FRANCISCO	NAS 9-15152	Benton, E. V.	53	1591
JSC	Thirolf, R. G.	UNIV SAN FRANCISCO	NAS 9-15337	Benton, E. V.	13	1592
JSC	Unavailable	UNIV OF SOUTHERN CAL	NAS 9-6164	Unavailable	13	1619
JSC	Lofren, G.	UNIV STHN COLORADO	NSG 9051	Smith, R. K.	19	1733
JSC	Kimzey, S. L.	UNIV TENNESSEE-KNOXV	NAS 9-15164	Chen, J. P.	52	3293
JSC	Harris, J. W.	UNIV TENNESSEE-KNOXV	NGL 43-001-140	Taylor, L. A.	11	3295
JSC	Kaplan, H. L.	U TENNESSEE-MEMPHIS	NAS 9-14918	Austian, J.	12	3307
JSC	Goodrich, W. D.	UNIV TEXAS-AUSTIN	NAS 9-13680	Bertin, J. J.	41	3428
JSC	Richard, R. R.	UNIV TEXAS-AUSTIN	NAS 9-14491	Hartwig, W. H.	49	3429
JSC	Eichelman, W. F.	UNIV TEXAS-AUSTIN	NAS 9-14581	Latham, G. V.	13	3430
JSC	Eichelman, W. F.	UNIV TEXAS-AUSTIN	NAS 9-14810	Latham, G. V.	13	3431
JSC	Potter, A. E.	UNIV TEXAS-AUSTIN	NAS 9-15093	Barnes, T.	11	3432
JSC	Pels, G. F.	UNIV TEXAS-AUSTIN	NAS 9-15217	Tucker, A. J.	49	3433
JSC	Primeaux, G. R.	UNIV TEXAS-AUSTIN	NAS 9-15297	Schmandt, J.	59	3434
JSC	Nitschke, H. A.	UNIV TEXAS-AUSTIN	NAS 9-15401	Crow, G. L.	41	3435
JSC	Harris, J. W.	UNIV TEXAS-AUSTIN	NSG 9021	Gose, W. A.	32	3461
JSC	Reschke, M. F.	UNIV TEXAS-GALVESTON	NAS 9-14641	Correia, M. J.	69	3482
JSC	Harris, J. W.	U TEX HEALTH CTR-SA	NSG 9049	Morgan, J. W.	13	3485
JSC	Rambout, P. C.	U TEX PUB HLTH-HUS	NAS 9-15388	Booth, F.	51	3486
JSC	Hoffler, G. W.	U TEX HEALTH CTR-DAL	NSG 9026	Blomquist, C. G.	52	3484
JSC	Rambaut, P. C.	UNIV OF WASHINGTON	NAS 9-13029	Nelp, W. B.	59	3660
JSC	Horz, F.	UNIV OF WASHINGTON	NAS 9-13743	Brownlee, D. E.	32	3661
JSC	Harris, J. W.	UNIV OF WASHINGTON	NSG 9032	Adams, J. D.	32	3685
JSC	Harris, J. W.	UNIV OF WASHINGTON	NSG 9052	Brownlee, D. E.	31	3686
JSC	Nachtwey, D. S.	UTAH STATE UNIV	NAS 9-14871	Caldwell, M. M.	51	3508
JSC	Hoffman, R. A.	VANDERBILT UNIVERSTY	NAS 9-15092	Pratt, L. H.	51	3312
JSC	Edge, J. T.	VIRGINIA POLY INST	NAS 9-15091	Demerdash, N. A.	15	3620
JSC	Day, J. L.	VIRGINIA POLY INST	NAS 9-15287	Rivers, D. B.	52	3621
JSC	Harris, J. W.	WASHINGTON UNIVERSTY	NGL 26-008-065	Walker, R. M.	13	2657
JSC	Harris, J. W.	WASHINGTON UNIVERSTY	NSG 9055	Haskin, L. A.	32	2667
KSC	Withrow, R. A.	BETHUNE-COOKMAN COL	NGR 10-022-001	Poonai, P.	39	1828
KSC	Schehl, T. A.	FLORIDA A&M UNIV	NGR 10-010-002	Cottrell, P. T.	39	1830
KSC	Malone, J. E.	FLORIDA A&M UNIV	NSG 805	Harrell, B. E.	59	1831
KSC	Franks, H. H.	FLORIDA INST OF TECH	NAS10-8399	Bowman, T. E.	43	1836
KSC	Franks, H. H.	FLORIDA INST OF TECH	NAS10-9166	Bowman, T. E.	43	1837
KSC	Burton, R.	FLORIDA TECH UNIV	NAS10-8934	Osborne, J.	39	1845
KSC	Lee, W. H.	FLORIDA TECH UNIV	NAS10-8986	Vickers, D. H.	39	1846
KSC	Lee, W. H.	FLORIDA TECH UNIV	NGR 10-019-004	Sweet, H. C.	39	1847
KSC	Lee, W. H.	FLORIDA TECH UNIV	NGR 10-019-009	StJohn, R.	39	1848
KSC	Keene, L. F.	GEORGIA INST OF TECH	NAS10-9097	Michelson, R. C.	49	1921
KSC	Jafferis, W.	GEORGIA INST OF TECH	NAS10-9210	Woody, J. A.	31	1922
KSC	Morrison, J. D.	KENTUCKY STATE UNIV	NSG 801	Kloek, G.	59	2157
KSC	Bryan, C. J.	NM HIGHLANDS UNIV	NSG 804	Clark, R. D.	12	2735
KSC	Schlimmer, G. E.	NEW MEX ST U-LAS CR	NAS10-8712	Unavailable	19	2754
KSC	Schlimmer, G. E.	NEW MEX ST U-LAS CR	NAS10-9115	Noda, T.	42	2755
KSC	Perkins, E. E.	SAVANNAH STATE COL	NSG 803	Ghuman, G. S.	39	1949
KSC	Bostwick, L. G.	SOUTHEASTN OKLA ST U	NSG 802	Robinson, J. L.	51	3112
KSC	Jafferis, W.	UNIV OF ARIZONA	NAS10-8518	Krider, E. P.	31	1100
KSC	Pope, C. D.	UNIV OF FLORIDA	NAS10-8920	Bartholic, J. F.	39	1854
KSC	Pope, C. D	UNIV OF FLORIDA	NAS10-9168	Bartholic, J. F.	39	1855

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
KSC	Jafferis, W.	UNIV OF FLORIDA	NGR 10-005-169	Uman, M. A.	31	1861
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-8795	Hirschberg, J. G.	39	1876
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-8926	Lee, S. S.	39	1877
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-8954	Hirschberg, J. G.	39	1878
KSC	Bland, R. A.	UNIV OF MIAMI	NAS10-9005	Lee, S. S.	39	1879
KSC	Bryan, C. J.	UNIV STHN COLORADO	NSG 806	Mahan, K. I.	12	1731
LARC	Yates, L. C., Jr.	BOSTON UNIVERSITY	NGR 22-004-030	Morino, L.	41	2318
LARC	Meador, W. E.	BROOKLYN COLLEGE	NSG 1378	Franco, V.	13	2781
LARC	Williams, T. S., Jr.	BROWN UNIVERSITY	NAS 1-9680	Mutch, T. A.	99	3241
LARC	Walker, G. H.	BROWN UNIVERSITY	NGR 40-002-093	Loferski, J. J.	13	3243
LARC	Padula, S. L.	BROWN UNIVERSITY	NSG 1076	Liu, J. T	39	3246
LARC	Kelly Iv, W. L.	BROWN UNIVERSITY	NSG 1222	Patterson, W. R., III	45	3247
LARC	Williams, T. S., Jr	CALIF INST OF TECH	NAS 1-9703	Anderson, D. L.	39	1157
LARC	Williams, T. S., Jr.	CALIF INST OF TECH	NAS 1-12311	Horowitz, N. H.	51	1158
LARC	Davis, R. C.	CALIF INST OF TECH	NSG 1005	Babcock, C. D., Jr.	41	1191
LARC	Ward, J. C., Jr.	CAL STATE U-FULLERTN	NAS 1-14621	Ryan, J. A.	31	1213
LARC	Walker, G. H.	CARNEGIE-MELLON UNIV	NGR 39-087-021	Milnes, A. G.	13	3145
LARC	Bland, S. R.	CARNEGIE-MELLON UNIV	NSG 1367	Fix, G. J.	41	3148
LARC	Morris, G. J.	CHRISTPHR NEWPRT COL	NAS 1-14034	Roby, A. B.	41	3514
LARC	Lansing, D. L.	CHRISTPHR NEWPRT COL	NSG 1429	Buoncristiani, A. M.	21	3515
LARC	Montgomery, R. C.	CITY COLLEGE OF N Y	NSG 1169	Mekel, R	41	2787
LARC	Turner, R. E.	CITY COLLEGE OF N Y	NSG 1305	Chen, C. M.	31	2788
LARC	Poe, C. C., Jr.	CLEMSON UNIV-CLEMSON	NSG 1297	Goree, J. G.	46	3251
LARC	Doggett, R. V., Jr.	CLEMSON UNIV-CLEMSON	NSG 1411	Rudisill, C. S.	41	3252
LARC	Dunning, R. S.	CLEVELAND STATE UNIV	NSG 1445	Chukwu, E. N.	41	3039
LARC	Anderson, A. F.	COLLEGE OF WM & MARY	NAS 1-14972	Aceto, H., Jr.	99	3516
LARC	Anderson, A. F.	COLLEGE OF WM & MARY	NGL 47-006-058	Rublein, G. T	99	3517
LARC	Breckenridge, R. A.	COLLEGE OF WM & MARY	NSG 1089	Moriarity, J. A.	13	3518
LARC	Young, P. R.	COLLEGE OF WM & MARY	NSG 1095	Kranbuehl, D. E.	12	3519
LARC	Russell, J. M., III	COLLEGE OF WM & MARY	NSG 1203	Park, J. H.	31	3520
LARC	Crouch, R. K.	COLLEGE OF WM & MARY	NSG 1385	Sher, A.	13	3521
LARC	Knight, J. C.	COLLEGE OF WM & MARY	NSG 1435	Feyock, S.	21	3522
LARC	Cooper, J. E.	COLORADO STATE UNIV	NAS 1-14538	VonDerHaar, T. H.	31	1632
LARC	Cawthorn, J. M.	COLUMBIA UNIVERSITY	NAS 1-14745	Galanter, E.	49	2796
LARC	Cawthorn, J. M.	COLUMBIA UNIVERSITY	NSG 1115	Galanter, E.	69	2815
LARC	Powell, C. A.	COLUMBIA UNIVERSITY	NSG 1164	Borsky, P. N.	49	2816
LARC	Williams, T. S., Jr.	CORNELL UNIVERSITY	NAS 1-9683	Sagan, C. L.	99	2831
LARC	Jobson, D. J.	CORNELL UNIVERSITY	NSG 1263	Harwit, M. O.	13	2857
LARC	Costen, R. C.	CORNELL UNIVERSITY	NSG 1365	Paine, D. A.	31	2858
LARC	Outlaw, R. A.	CORNELL UNIVERSITY	NSG 1371	Merrill, R. P.	47	2859
LARC	Russell, J. M., III	DREXEL UNIVERSITY	NAS 1-14393	House, F. B.	31	3150
LARC	Conway, E. J.	ELIZABETH CITY ST U	NSG 1179	Chatterjee, K. K.	12	2981
LARC	Williams, T. S., Jr.	FLORIDA STATE UNIV	NAS 1-9693	Hess, S. K.	32	1838
LARC	McMaster, L. R.	FLORIDA STATE UNIV	NAS 1-14930	Craig, R. A.	31	1839
LARC	Hardin, J. C.	FLORIDA STATE UNIV	NSG 1329	Tam, C. K	13	1842
LARC	Cox, J.	GEORGE MASON UNIV	NCA 1-6	Trehan, A.	49	3525
LARC	Duberg, J. E.	GEORGE WASHINGTON U	NAS 1-14605	Liebowitz, H.	41	1767
LARC	Duberg, J. E.	GEORGE WASHINGTON U	NGL 09-010-053	Liebowitz, H	49	1772
LARC	Margolis, K.	GEORGE WASHINGTON U	NGR 09-010-064	Liebowitz, H.	41	1773
LARC	Mulac, R. W.	GEORGE WASHINGTON U	NGR 09-010-074	Liebowitz, H	41	1774
LARC	Anderson, R. A	GEORGE WASHINGTON U	NGR 09-010-078	Liebowitz, H.	41	1775
LARC	Margolis, K	GEORGE WASHINGTON U	NGR 09-010-085	Liebowitz, H.	41	1776
LARC	Croswell, W. F.	GEORGE WASHINGTON U	NGR 09-010-096	Liebowitz, H	45	1777
LARC	Callis, L. B.	GEORGE WASHINGTON U	NSG 1026	Liebowitz, H.	31	1778
LARC	Bailey, M. C.	GEORGE WASHINGTON U	NSG 1110	Liebowitz, H	45	1779
LARC	Swann, R. T	GEORGE WASHINGTON U	NSG 1155	Liebowitz, H	47	1780
LARC	Suit, W. T	GEORGE WASHINGTON U	NSG 1161	Liebowitz, H.	41	1781
LARC	Callis, L. B	GEORGE WASHINGTON U	NSG 1216	Liebowitz, H	31	1782

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NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Poe, C. C., Jr.	GEORGE WASHINGTON U	NSG 1228	Liebowitz, H.	47	1783
LARC	Costen, R. C.	GEORGE WASHINGTON U	NSG 1251	Liebowitz, H.	31	1784
LARC	Elber, W.	GEORGE WASHINGTON U	NSG 1289	Liebowitz, H.	47	1785
LARC	Migneault, G. E.	GEORGE WASHINGTON U	NSG 1338	Gross, D.	41	1786
LARC	Creedon, J. F.	GEORGE WASHINGTON U	NSG 1339	Kyriakopoulos, N.	41	1787
LARC	Roderick, G. L.	GEORGE WASHINGTON U	NSG 1415	Yang, J. N.	47	1788
LARC	Reed, W. H., III	GEORGE WASHINGTON U	NSG 1438	Liebowitz, H.	41	178
LARC	Crews, J. H., Jr.	GEORGE WASHINGTON U	NSG 1449	Liebowitz, H.	47	179[illegible]
LARC	Tenney, D. R.	GEORGETOWN UNIV	NSG 1418	Liebowitz, H.	47	179[illegible]
LARC	Williams, T. S., Jr.	GEORGIA INST OF TECH	NAS 1-13422	Hubbard, J. S.	51	1900
LARC	Lawrence, G. F.	GEORGIA INST OF TECH	NAS 1-14351	Zimmer, R. P.	31	1901
LARC	ONeal, R. L.	GEORGIA INST OF TECH	NAS 1-14654	Blue, M. D.	45	1902
LARC	Hall, J. B., Jr.	GEORGIA INST OF TECH	NAS 1-14947	Wilkins, R. D.	99	1903
LARC	Hohl, F.	GEORGIA INST OF TECH	NSG 1288	Clement, J. D.	19	1924
LARC	Preisser, J. S.	GEORGIA INST OF TECH	NSG 1307	Pierce, A. D.	13	1925
LARC	Newman, J. C., Jr.	GEORGIA INST OF TECH	NSG 1351	Atluri, S. N.	49	1926
LARC	Elber, W.	GEORGIA INST OF TECH	NSG 1352	Hanagud, S. V.	47	1927
LARC	Jewell, J. W., Jr.	HAMPTON INSTITUTE	NAS 1-14507	Williams, G. K.	41	3526
LARC	Erickson, W. D.	HAMPTON INSTITUTE	NAS 1-14832	Darden, G. C.	19	3527
LARC	Anderson, A. F.	HAMPTON INSTITUTE	NCA 1-1	Darden, G. C	49	3528
LARC	Jachimowski, C. J.	HAMPTON INSTITUTE	NSG 1086	Hunter, C. E.	12	3530
LARC	Katzberg, S. J.	HAMPTON INSTITUTE	NSG 1294	Trehan, A. K.	45	3531
LARC	Williams, T. S., Jr.	HARVARD UNIVERSITY	NAS 1-10492	McElroy, M. B.	31	2323
LARC	Swift, C. T.	HOFSTRA UNIVERSITY	NGR 33-209-002	Weissman, D. E.	45	2874
LARC	Anderson, M. S.	HOWARD UNIVERSITY	NSG 1130	Broome, T. H.	44	1806
LARC	Martz, C. W.	HOWARD UNIVERSITY	NSG 1181	Bainum, P. M.	41	1807
LARC	Horner, G. C.	HOWARD UNIVERSITY	NSG 1320	Jones, I. W.	42	1808
LARC	Russell, R. A.	HOWARD UNIVERSITY	NSG 1414	Bainum, P. M.	49	1809
LARC	Beckwith, I. E.	ILL INST OF TECH	NSG 1120	Nagib, H. M.	41	1976
LARC	Giles, G. L.	ILL INST OF TECH	NSG 1266	Haftka, R. T.	41	1977
LARC	Harvey, W. D.	ILL INST OF TECH	NSG 1451	Nagib, H. M.	41	1978
LARC	Conway, E. J.	INDIANA U-BLOOMINGTN	NSG 1319	Ortoleva, P.	12	2053
LARC	Fralich, R. W.	IOWA STATE UNIV	NSG 1372	McDaniel, T. J.	49	2095
LARC	Abel, I.	ISRAEL INST OF TECH	NSG 7072	Nissim, E.	41	3748
LARC	Bush, H. G.	ISRAEL INST OF TECH	NSG 7083	Weller, T.	41	3749
LARC	Bavuso, S. J.	JOHNS HOPKINS UNIV	NSG 1265	Masson, G. M.	45	2218
LARC	Bavuso, S. J.	JOHNS HOPKINS UNIV	NSG 1442	Masson, G. M.	45	2219
LARC	Everett, R. A., Jr.	LEHIGH UNIVERSITY	NGR 39-007-011	Erdogan, F.	21	3167
LARC	Campbell, J. W.	MARY BALDWIN COLLEGE	NSG 1209	Sawyer, J. O.	21	3532
LARC	Williams, T. S., Jr.	MASS INST OF TECH	NAS 1-9684	Biemann, K.	39	2361
LARC	Williams, T. S., Jr.	MASS INST OF TECH	NAS 1-9691	Rich, A.	51	2362
LARC	Williams, T. S., Jr.	MASS INST OF TECH	NAS 1-9702	Shapiro, I. I.	99	2363
LARC	McMaster, L. R.	MASS INST OF TECH	NAS 1-14932	Cunnold, D. M.	31	2364
LARC	Reid, H. J., Jr.	MASS INST OF TECH	NGL 22-009-640	Simpson, R. W.	41	2405
LARC	Queijo, M. J.	MASS INST OF TECH	NGR 22-009-701	Young, L. R.	41	2419
LARC	Rhodes, M. D.	MASS INST OF TECH	NGR 22-009-781	Mar, J. W.	41	2426
LARC	Hoad, D. R.	MASS INST OF TECH	NGR 22-009-818	Widnall, S. E.	41	2431
LARC	Gera, J.	MASS INST OF TECH	NSG 1018	Athans, M.	41	2434
LARC	Byvik, C. E.	MASS INST OF TECH	NSG 1048	Wrighton, M. S.	12	2435
LARC	Byvik, C. E.	MASS INST OF TECH	NSG 1190	Gatos, H. C.	47	2436
LARC	Bland, S. R.	MASS INST OF TECH	NSG 1219	Harris, W. T.	41	2437
LARC	Boyden, R. P.	MASS INST OF TECH	NSG 1292	Covert, E. E.	41	2438
LARC	ONeal, R. L.	MASS INST OF TECH	NSG 1299	McCarthy, J. F., Jr.	99	2439
LARC	Armstrong, E. S.	MASS INST OF TECH	NSG 1312	Athans, M.	45	2440
LARC	Shoosmith, J. N.	MASS INST OF TECH	NSG 1323	Moses, J.	22	2441
LARC	Outlaw, R. A.	MASS INST OF TECH	NSG 1337	Gatos, H. C.	47	2442
LARC	Richter, W. B.	MASS INST OF TECH	NSG 1349	Williams, J. H., Jr.	46	2443
LARC	Boyden, R. P.	MASS INST OF TECH	NSG 1356	Covert, E. E.	41	2444

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
LARC	Allario, F.	MASS INST OF TECH	NSG 1413	Fonstad, C. G.	13	2445
LARC	Queijo, M J.	MASS INST OF TECH	NSG 1416	Young, L. R.	41	2446
LARC	Armstrong, E. S	MASS INST OF TECH	NSG 1447	Athans, M.	45	2447
LARC	Hohl, F.	MIAMI UNIVERSITY	NSG 1383	Wells, W. E.	13	3045
LARC	Hohl, F.	MIAMI UNIVERSITY	NSG 1396	Wells, W. E.	13	3046
LARC	Unavailable	MICHIGAN STATE UNIV	NAS 1-6860	Unavailable	13	2504
LARC	Hardin, J C.	MICHIGAN STATE UNIV	NGR 23-004-091	Foss, J. F	41	2506
LARC	Bobbitt, P. J.	MISSISSIPPI STATE U	NGR 25-001-055	Thompson J. F	41	2621
LARC	Hall, A. W.	MISSISSIPPI STATE U	NSG 1083	Cross, E. J., Jr.	41	2622
LARC	Weilmuenster, K. J.	MISSISSIPPI STATE U	NSG 1242	Thompson, J. F.	21	2623
LARC	Harris, R. L	MISSISSIPPI STATE U	NSG 1249	Bennett, A. G., Jr.	41	2624
LARC	Gera, J.	MISSISSIPPI STATE U	NSG 1284	Bennett, A. G., Jr.	41	2625
LARC	Hogge, J. E.	MISSISSIPPI STATE U	NSG 1375	Butler, C. M	22	2626
LARC	McLemore, H. C.	MISSISSIPPI STATE U	NSG 1402	Cross, E. J., Jr.	41	2627
LARC	Judd, J. H.	MISSISSIPPI STATE U	NSG 1454	Cross, E. J., Jr.	41	2628
LARC	Darden, C. M.	NEW YORK UNIVERSITY	NGL 33-016-119	Ting, L.	41	2876
LARC	Huber, P. W.	NEW YORK UNIVERSITY	NGR 33-016-131	Agnone, A M.	41	2877
LARC	South, J. C., Jr.	NEW YORK UNIVERSITY	NGR 33-016-167	Garabedian, P. R	21	2878
LARC	McLean, F. E.	NEW YORK UNIVERSITY	NSG 1298	Hoffert, M. I.	39	2881
LARC	Edwards, C. L.	NEW YORK UNIVERSITY	NSG 1444	Zakkay, V	41	2882
LARC	Shoosmith, J. N.	NORFOLK STATE COL	NSG 1014	Thorne, K. S	21	3533
LARC	Rhodes, M D	NO CAR A&T STATE U	NSG 1296	Sharma, A V.	47	2984
LARC	Allario, F.	NO CAR A&T STATE U	NSG 1346	Yu, C.	13	2985
LARC	Hutchby, J A	NO CAR A&T STATE U	NSG 1390	Alexander, W I.	45	2986
LARC	Mayes, W. H.	NO CAROLINA STATE U	NGL 34-002-095	Horvath, J. J	69	2991
LARC	Croswell, W. F.	NO CAROLINA STATE U	NGR 34-002-188	Kauffman, J F.	45	2992
LARC	Hohl, F	NO CAROLINA STATE U	NSG 1058	Hassan, H. A.	13	2994
LARC	Crane, H. L.	NO CAROLINA STATE U	NSG 1077	Smetana, F O	41	2995
LARC	Hutchby, J. A.	NO CAROLINA STATE U	NSG 1116	Hauser, J. R.	45	2996
LARC	Miller, W. E.	NO CAROLINA STATE U	NSG 1202	Littlejohn, M. A	13	2997
LARC	Mayes, W. H.	NO CAROLINA STATE U	NSG 1205	Hart, I. D.	13	2998
LARC	Walberg, G. D	NO CAROLINA STATE U	NSG 1287	Dejarnette, F R	41	2999
LARC	Benz, H. F.	NO CAROLINA STATE U	NSG 1353	Snyder, W. T	45	3000
LARC	Hatfield, J. J.	NO CAROLINA STATE U	NSG 1355	Stroh, R W.	45	3001
LARC	Brooks, T. F.	NO CAROLINA STATE U	NSG 1377	Hodgson, T. H.	41	3002
LARC	Long, E. R., Jr.	NO CAROLINA STATE U	NSG 1423	Memory, J D	47	3003
LARC	Campbell, J F	NO CAROLINA STATE U	NSG 1437	Dejarnette, F. R	41	3004
LARC	Barnwell, R. W	OHIO STATE UNIV	NAS 1-14406	Gregorek, G M	41	3047
LARC	Gilreath, M. C.	OHIO STATE UNIV	NGL 36 008-138	Burnside, W. D	45	3057
LARC	Hall, A. W.	OHIO STATE UNIV	NSG 1184	Gregorek, G M.	41	3061
LARC	Judd, J. H.	OHIO STATE UNIV	NSG 1327	Gregorek, G M	41	3062
LARC	Reid, H J., Jr.	OHIO UNIVERSITY	NGR 36-009-017	McFarland, R. H	45	3071
LARC	Martin, D. J.	OLD DOMINION UNIV	NAS 1-11707	Ousterhout, D S	49	3534
LARC	Whitlock, C H.	OLD DOMINION UNIV	NAS 1-14193	Ousterhout, D. S	99	3535
LARC	Duberg, J. E.	OLD DOMINION UNIV	NGR 47-003-052	Roberts, A. S., Jr.	41	3537
LARC	Keating, G. M.	OLD DOMINION UNIV	NSG 1028	Goglia, G. I	31	3540
LARC	Hohl, F	OLD DOMINION UNIV	NSG 1040	Harries, W I.	19	3541
LARC	Tripp, J S	OLD DOMINION UNIV	NSG 1079	Tcheng, P L.	45	3542
LARC	Hefner, J. N	OLD DOMINION UNIV	NSG 1087	Goglia, G L.	41	3543
LARC	Harris, J E	OLD DOMINION UNIV	NSG 1098	Cooke, C. H	41	3544
LARC	Hefner, J N.	OLD DOMINION UNIV	NSG 1100	Ash, R. L.	41	3545
LARC	Reichle, H. G , Jr	OLD DOMINION UNIV	NSG 1127	Kindle, E C	31	3546
LARC	Russell, J. M., III	OLD DOMINION UNIV	NSG 1131	Kindle, E. C	31	3547
LARC	Kershner, D D	OLD DOMINION UNIV	NSG 1143	Barna, P S	41	3548
LARC	Gapcynski, J P	OLD DOMINION UNIV	NSG 1152	Breedlove, W J , Jr	19	3549
LARC	Davis, J G., Jr.	OLD DOMINION UNIV	NSG 1167	Hyer, M W.	41	3550
LARC	Hellbaum, R. F.	OLD DOMINION UNIV	NSG 1177	Goglia, G I.	45	3551
LARC	Allario, F.	OLD DOMINION UNIV	NSG 1197	Kindle, E. C	31	3552

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
LARC	Keating, G. M.	OLD DOMIN ON UNIV	NSG 1207	Goglia, G. L	19	3553
LARC	Harris, J. E.	OLD DOMINION UNIV	NSG 1226	Goglia, G L.	41	3554
LARC	Hefner, J. N.	OLD DOMINION UNIV	NSG 1236	Goglia, G. L	46	3555
LARC	Keckler, C. R.	OLD DOMINION UNIV	NSG 1241	Roberts, A. S., Jr.	49	3556
LARC	Fuller, W. H., Jr.	OLD DOMINION UNIV	NSG 1245	Harris, F. S., Jr.	39	3557
LARC	McCormick, M. P.	OLD DOMINION UNIV	NSG 1252	Deepak, A.	31	3558
LARC	Adelman, H. M	OLD DOMINION UNIV	NSG 1260	Golia, G. L.	41	3559
LARC	Melfi, L. T., Jr.	OLD DOMINION UNIV	NSG 1271	Brock, F J	13	3560
LARC	Kruszewski, E. T	OLD DOMINION UNIV	NSG 1279	Hyer, M. W.	49	3561
LARC	Reichle, H. G., Jr.	OLD DOMINION UNIV	NSG 1282	Tiwari, S. N.	31	3562
LARC	Peterson, J. B., Jr.	OLD DOMINION UNIV	NS 1315	Goglia, G L.	41	3563
LARC	Hunt, L. R	OLD DOMINION UNIV	NSG 1318	Keshock, E G	41	3564
LARC	Wieting, A. R.	OLD DOMINION UNIV	NSG 1321	Thornton, E A.	49	3565
LARC	Holmes, H. K.	OLD DOMINION UNIV	NSG 1324	Zuckerwar, A. J	13	3566
LARC	Hanks, B R.	OLD DOMINION UNIV	NSG 1325	Goglia, G. L	46	3567
LARC	Campbell, T. G.	OLD DOMINION UNIV	NSG 1331	Becher, J.	45	3568
LARC	McMaster, L. R.	OLD DOMINION UNIV	NSG 1341	Chu, W. P	31	3569
LARC	Browell, E. V.	OLD DOMINION UNIV	NSG 1343	Kindle, E. C	39	3570
LARC	Jenkins, J. L.	OLD DOMINION UNIV	NSG 1344	Goglia, G L	41	3571
LARC	Beach, H. L., Jr	OLD DOMINION UNIV	NSG 1348	Goglia, G I	41	3572
LARC	Dempsey, T. K.	OLD DOMINION UNIV	NSG 1350	Kirby, R. H.	99	3573
LARC	Gloss, B. B	OLD DOMINION UNIV	NSG 1357	Kuhlman, J M.	41	3574
LARC	Hohl, F	OLD DOMINION UNIV	NSG 1362	Harries, W L.	13	3575
LARC	Hammond, C. E.	OLD DOMINION UNIV	NSG 1370	Goglia, G. L.	41	3576
LARC	Waller, M. C.	OLD DOMINION UNIV	NSG 1379	Varanasi, M R	45	3577
LARC	Phillips, D. H	OLD DOMINION UNIV	NSG 1393	Goglia, G L.	12	3578
LARC	Reichle, H. G., Jr.	OLD DOMINION UNIV	NSG 1394	Kindle, E. C.	31	3579
LARC	Beck, S. M	OLD DOMINION UNIV	NSG 1395	Kindle, E. C	31	3580
LARC	Conway, E. J.	OLD DOMINION UNIV	NSG 1426	Heinbockel, J H	21	3581
LARC	Johnson, R. W.	OLD DOMINION UNIV	NSG 1441	Kuo, C. Y.	39	3582
LARC	Mantay, W. R.	PENN STATE U-UNIV PK	NGL 39-009-172	Eisenhuth, J. J	41	3189
LARC	Fisher, B. D.	PENN STATE U-UNIV PK	NSG 1308	McCormick, B W	41	3195
LARC	Smith, R E.	PENN STATE U-UNIV PK	NSG 1328	Stocker, F R	22	3196
LARC	Price, H. L	PENN STATE U-UNIV PK	NSG 1359	Galanti, A. V	43	3197
LARC	Fripp, A. L	PENN STATE U-UNIV PK	NSG 1387	White, W B	47	3198
LARC	Dixon, G. V	PENN STATE U-UNIV PK	NSG 1457	Gumas, G. P	21	3199
LARC	Hoppe, J. C.	POLY INST OF NY	NSG 1196	Lederman, S	42	2895
LARC	Rudy, D. H.	POLY INST OF NY	NSG 1244	Rubin, S. G	41	2896
LARC	Salas, M. D.	POLY INST OF NY	NSG 1248	Moretti, G	41	2897
LARC	Morgan, H L., Jr.	POLY INST OF NY	NSG 1300	Krenkel, A. R.	41	2898
LARC	Williams, T. S., Jr.	POMONA COLLEGE	NAS 1-11854	Baird, A K	12	1227
LARC	Williams, T. S., Jr	PRINCETON UNIVERSITY	NAS 1-9705	Hargraves, R B	19	2695
LARC	Miller, G K	PRINCETON UNIVERSITY	NAS 1-13502	Sockel, H	41	2696
LARC	Mixson, J S.	PRINCETON UNIVERSITY	NGL 31-001-146	Dowell, E H.	41	2709
LARC	Reid, H. J., Jr	PRINCETON UNIVERSITY	NGL 31-001-252	Graham, D	41	2710
LARC	Honaker, W C.	PRINCETON UNIVERSITY	NSG 1070	Miles, R B.	13	2716
LARC	Mixson, J. S.	PRINCETON UNIVERSITY	NSG 1253	Dowell, E H	41	2717
LARC	Landrum, E J	PURDUE UNIVERSITY	NGR 15-005-119	Marhall, E J	41	2065
LARC	Roderick, G. L	PURDUE UNIVERSITY	NSG 1278	Sun, C T.	47	2069
LARC	Pao, S P	PURDUE UNIVERSITY	NSG 1293	Kentzer, C P	41	2070
LARC	Wood, G. M	RENSSELAER POLY-NY	NSG 1360	White, E A	13	2914
LARC	Adams, W. M., Jr	RENSSELAER POLY-NY	NSG 1384	Kaufman, H	41	2915
LARC	Beach, H L., Jr.	RUTGERS UNIV-NEWARK	NSG 1314	Johnson, J A., III	13	2733
LARC	Levine, J. S	SAN DIEGO STATE UNIV	NSG 1430	Angione, R J	31	1229
LARC	Walker, G. H	SOUTHERN METHODIST U	NSG 1206	Ashley, K I	45	3358
LARC	Williams, T S., Jr	STANFORD UNIVERSITY	NAS 1-9682	Levinthal, E C	99	1267
LARC	Williams, T S., Jr	STANFORD UNIVERSITY	NAS 1-9692	Lederberg, J	51	1268
LARC	Williams, T S., Jr.	STANFORD UNIVERSITY	NAS 1-9701	Tyler, G L.	45	1269

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Doggett, R. V., Jr	STANFORD UNIVERSITY	NGL 05-020-243	Ashley, H.	41	1309
LARC	Reed, W. H., III	STANFORD UNIVERSITY	NGL 05-020-397	Herrmann, G	41	1312
LARC	Hutchby, J. A	STANFORD UNIVERSITY	NSG 1201	Pearson, G. L.	13	1335
LARC	Outlaw, R. A.	STANFORD UNIVERSITY	NSG 1345	Madix, R. J	47	1336
LARC	Outlaw, R. A.	STANFORD UNIVERSITY	NSG 1381	Madix, R. J.	47	1337
LARC	Bayuso, S. J.	STANFORD UNIVERSITY	NSG 1410	McCluskey, E. J	45	1338
LARC	Shoosmith, J. N	STANFORD UNIVERSITY	NSG 1443	Golub, G. H.	21	1339
LARC	Williams, T. S., Jr.	STATE U NY-STONY BRK	NAS 1-10493	Owens, T.	39	2939
LARC	South, J. C., Jr	TEXAS A&M UNIVERSITY	NSG 1174	Carlson, L. A.	41	3385
LARC	Hearn, C. P.	TEXAS A&M UNIVERSITY	NSG 1374	Painter, J. H	45	3386
LARC	Chambers, J. R.	TEXAS A&M UNIVERSITY	NSG 1407	Chevalier, H. L.	41	3387
LARC	McCormick, M. P	UNIV OF ARIZONA	NAS 1-14332	Herman, B. M.	31	1084
LARC	McMaster, L. R.	UNIV OF ARIZONA	NAS 1-14928	Herman, B. M.	31	1085
LARC	Outlaw, R. A.	UNIV CALIF-BERKELEY	NSG 1347	Peterson, E.	47	1416
LARC	Stroud, W. J	UNIV CALIF-L ANGELES	NGR 05-007-337	Schmit, L. A	41	1486
LARC	Hammond, C. E	UNIV CALIF-L ANGELES	NGR 05-007-414	Friedmann, P	41	1489
LARC	Keating, G. M.	UNIV CALIF-L ANGELES	NGR 05-007-416	Knuth, E. L.	13	1490
LARC	McCormick, M. P	UNIV CALIF-L ANGELES	NSG 1270	Kuriyan, J. G.	31	1492
LARC	Cary, A. M., Jr	UNIV CALIF-SAN DIEGO	NSG 1386	Libby, P. A	41	1552
LARC	Suit, W. T.	UNIV OF CINCINNATI	NGR 36-004-061	Wells, W. R.	41	3074
LARC	Mikulas, M. M., Jr.	UNIV OF CINCINNATI	NSG 1185	Nayfeh, A. H	49	3077
LARC	Dunavant, J. C	UNIV OF CINCINNATI	NSG 1208	Polak, A	41	3078
LARC	Schy, A. A	UNIV COLORADO-BOLDR	NSG 1213	Wang, S. H.	45	1692
LARC	Bowker, D. E.	UNIV OF DELAWARE	NSG 1149	Klemas, V.	39	1751
LARC	Deaton, J. W	UNIV OF DELAWARE	NSG 1304	Pipes, R. B	46	1752
LARC	Cooper, P. A.	UNIV OF DELAWARE	NSG 1368	Daugherty, R. L	41	1753
LARC	Bowker, D. E	UNIV OF DELAWARE	NSG 1398	Klemas, V.	39	1754
LARC	Cooper, P. A	UNIV OF DELAWARE	NSG 1409	Pipes, R. B.	42	1755
LARC	Bowker, D. E	UNIV OF DELAWARE	NSG 1433	Klemas, V	39	1756
LARC	McMaster, L. R	UNIV OF DENVER	NAS 1-14929	Mureray, D. G	31	1713
LARC	McCormick, M. P	UNIV OF DENVER	NSG 1333	Mureray, D. G.	31	1724
LARC	McCormick, M. P	UNIV OF DENVER	NSG 1405	Goldman, A	31	1725
LARC	Hoell, J. M	UNIV OF DENVER	NSG 1432	Mureray, D. G	39	1726
LARC	McCormick, M. P	UNIV OF DENVER	NSG 1439	Mureray, D. G.	31	1727
LARC	Margason, R. J	UNIV OF FLORIDA	NGL 10-005-127	Fearn, R. L	41	1859
LARC	Reichle, H. G., Jr	UNIV OF FLORIDA	NSG 1363	Chamerdes, W. L.	31	1863
LARC	Walker, G. H	UNIV OF FLORIDA	NSG 1425	Li, S. S	45	1864
LARC	Williams, T. S., Jr	UNIV HOUSTON-HOUSTON	NAS 1-9685	Oro, J	39	3398
LARC	Hefner, J. N	UNIV HOUSTON-HOUSTON	NSG 1290	Hussain, A. K.	41	3416
LARC	Evans, J. S	UNIV ILLINOIS-CHICGO	NSG 1150	Chung, P. M	41	2019
LARC	Salmirs, S	UNIV ILLINOIS-URBANA	NAS 1-14731	Jensen, R. S	41	2021
LARC	Stickle, J. W	UNIV ILLINOIS-URBANA	NGR 14-005-194	Ormsbee, A. I.	41	2028
LARC	Hohl, F	UNIV ILLINOIS-URBANA	NSG 1063	Miley, G. H	13	2031
LARC	Jordan, F. L., Jr	UNIV ILLINOIS-URBANA	NSG 1400	Ormsbee, A. I	19	2032
LARC	Jordan, F. L., Jr	UNIV ILLINOIS-URBANA	NSG 1434	Ormsbee, A. I	41	2033
LARC	Coffee, C. W., Jr	UNIV OF IOWA	NAS 1-12129	VanAllen, J. A	13	2103
LARC	Ward, J. F	UNIV OF KANSAS	NAS 1-12976	Muirhead, V. U	41	2121
LARC	Crane, H. L	UNIV OF KANSAS	NGR 17-002-072	Kohlman, D. L	41	2130
LARC	Pride, R. A	UNIV OF KANSAS	NGR 17-004-027	Lenzen, K. H	41	2132
LARC	Lamar, J. F	UNIV OF KANSAS	NSG 1046	Roskam, J	41	2133
LARC	Hammond, C. E	UNIV OF KANSAS	NSG 1122	Lenzen, K. H	41	2134
LARC	Campbell, J. F	UNIV OF KANSAS	NSG 1139	Lan, C. E	41	2135
LARC	Bailey, M. C	UNIV OF KANSAS	NSG 1142	Biggs, A. W	45	2136
LARC	Rummler, D. R	UNIV OF KANSAS	NSG 1269	Zerwekh, R. P	47	2137
LARC	Howell, W. E	UNIV OF KANSAS	NSG 1281	Reese, C. D	47	2138
LARC	Stephens, D. G	UNIV OF KANSAS	NSG 1301	Roskam, J	41	2139
LARC	Pritchard, E. B	UNIV OF KANSAS	NSG 1310	Lenzen, K. H	44	2140
LARC	Schroeder, L. C	UNIV OF KANSAS	NSG 1397	Moore, R. K	33	2141

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Hewes, D. E.	UNIV OF KANSAS	NSG 1421	Roskam, J.	41	2142
LARC	Pritchard, E. B.	UNIV OF KANSAS	NSG 1422	Lenzen, K. H.	39	2143
LARC	Reichle, H. G., Jr.	UNIV OF KENTUCKY	NSG 1273	Peters, L. K.	31	2166
LARC	Reichle, H. G., Jr.	UNIV OF KENTUCKY	NSG 1424	Peters, L. K.	31	2167
LARC	Mayes, W. H.	UNIV OF LOUISVILLE	NSG 1220	Loeb, M.	69	2176
LARC	Fralich, R. W.	UNIVERSITY OF LOWELL	NSG 1295	McElman, J. A.	41	2495
LARC	Hoell, J. M.	UNIV MARYLAND-COL PK	NSG 1075	Davis, D. D.	39	2272
LARC	Browell, E. V.	UNIV MARYLAND-COL PK	NSG 1156	Gammon, R. W.	31	2273
LARC	McComb, H. G., Jr.	UNIV MARYLAND-COL PK	NSG 1193	Schaeffer, H. G.	41	2274
LARC	Browell, E. V.	UNIV MARYLAND-COL PK	NSG 1336	Wilkerson, T. D.	31	2275
LARC	Lisagor, W. B.	UNIV OF MIAMI	NSG 1283	Craig, H. L., Jr.	47	1883
LARC	Tucker, J. H.	UNIV OF MIAMI	NSG 1436	Tapia, M. A.	21	1884
LARC	Russell, J. M., III	UNIV MICH-ANN ARBOR	NAS 1-14394	Drayson, S. R.	31	2509
LARC	McCarty, J. L.	UNIV MICH-ANN ARBOR	NGL 23-005-010	Clark, S. R.	41	2534
LARC	Fichter, W. B.	UNIV MICH-ANN ARBOR	NGR 23-005-528	Felbeck, D. K.	47	2541
LARC	McCarty, J. L.	UNIV MICH-ANN ARBOR	NSG 1080	Clark, S. K.	41	2544
LARC	Stough, H. P., III	UNIV MICH-ANN ARBOR	NSG 1229	Kroeger, R. A	41	2545
LARC	Pellett, G. L.	UNIV MICH-ANN ARBOR	NSG 1243	Dingle, A. N.	31	2546
LARC	Bavuso, S. J.	UNIV MICH-ANN ARBOR	NSG 1306	Meyer, J. F.	45	2547
LARC	Czarnecki, K. R.	UNIV MICH-ANN ARBOR	NSG 1326	Sichel, M.	41	2548
LARC	Russell, J. M., III	UNIV MICH-ANN ARBOR	NSG 1373	Drayson, S. R.	31	2549
LARC	Dunning, R. S.	UNIV MICH-ANN ARBOR	NSG 1448	Vinh, N. X.	41	2550
LARC	Williams, T. S., Jr.	U MINN-MNPLS-ST PAUL	NAS 1-9697	Nier, A. O.	99	2573
LARC	Beswick, A. G.	U MINN-MNPLS-ST PAUL	NSG 1431	Mauersberger, K	31	2593
LARC	Mixson, J. S.	UNIV MO-ROLLA	NSG 1050	Koval, L. R.	41	2648
LARC	Graves, R. A., Jr.	UNIV MO-ROLLA	NSG 1369	Biolsi, L.	12	2649
LARC	Williams, T. S., Jr.	UNIV OF NEW MEXICO	NAS 1-11855	Keil, K.	12	2761
LARC	Hassell, J. L., Jr.	UNIV OKLAHOMA-NORMAN	NAS 1-14986	Bergey, K. H.	41	3113
LARC	Gross, C.	UNIV OKLAHOMA-NORMAN	NSG 1183	Kahng, S. K	45	3118
LARC	Bryant, F. R.	UNIV OKLAHOMA-NORMAN	NSG 1404	Kahng, S. K.	13	3119
LARC	Pritchard, E. B.	UNIV OF RHODE ISLAND	NSG 1008	Spaulding, M. L.	49	3249
LARC	Katzberg, S. J.	UNIV SO CAROLINA-COL	NSG 1334	Zingmark, R. G.	39	3256
LARC	Park, S. K.	UNIV OF SO FLORIDA	NSG 1159	Tsokos, C. P.	21	1889
LARC	Tolson, R. H.	UNIV OF SO FLORIDA	NSG 1420	Smith, H. C.	11	1890
LARC	Hall, J. B., Jr.	UNIV OF SO FLORIDA	NSG 7242	Wilkins, R. D.	11	1892
LARC	Kilgore, R. A.	UNIV OF SOUTHAMPTON	NSG 7172	Goodyer, M. J.	41	3747
LARC	Seiner, J. M.	UNIV OF SOUTHERN CAL	NSG 1221	Laufer, J.	41	1628
LARC	Stein, M.	UNIV OF SOUTHERN CAL	NSG 1401	Seide, P.	41	1629
LARC	Wood, G. M.	UNIV SO MISSISSIPPI	NSG 1380	Rayborn, G. H.	13	2635
LARC	Melfi, L. T., Jr.	UNIV OF SYDNEY	NSG 7272	Bird, G. A.	13	3741
LARC	Silcox, R. J.	UNIV TENNESSEE-KNOXV	NSG 1081	Lumsdaine, E.	41	3298
LARC	Newman, J. C., Jr.	UNIV TENNESSEE-KNOXV	NSG 1163	Wright, M. A.	47	3299
LARC	Hammond, C. E.	UNIV TENNESSEE-KNOXV	NSG 1171	Lumsdaine, E.	41	3300
LARC	Bland, S. R.	UNIV TENNESSEE-KNOXV	NSG 1224	Kimble, K. R.	41	3301
LARC	Bland, S. R.	UNIV TENNESSEE-KNOXV	NSG 1366	Gunzburger, M. D.	41	3302
LARC	Smith, R. E.	UNIV TENNESSEE-KNOXV	NSG 1391	Baker, A. J	21	3303
LARC	Robinson, J. C.	U TENNESSEE-NASHVILE	NSG 1340	Blackburn, C. L	41	3308
LARC	Hilton, D. A.	UNIV TEXAS-AUSTIN	NAS 1-14160	Blackstock, D. T.	41	3424
LARC	Shoosmith, J. N.	UNIV TEXAS-AUSTIN	NSG 1440	Daniel, J. W.	21	3446
LARC	Shipman, F. S.	UNIV TEXAS-AUSTIN	NSG 1446	Browne, J. C	22	3447
LARC	Williams, T. S., Jr.	UNIV TEXAS-DALLAS	NAS 1-9699	Hanson, W. B.	99	3462
LARC	Breckenridge, R. A.	UNIV TEXAS-EL PASO	NSG 1316	Eastman, M. P.	13	3480
LARC	Evans, J. S.	UNIV OF TORONTO	NAS 1-14843	Glass, I. I.	41	3742
LARC	Foye, R. L.	UNIV OF TORONTO	NSG 7219	Tennyson, R. C.	47	3743
LARC	Williams, T. S., Jr.	UNIV OF UTAH	NAS 1-12705	Shorthill, R. W.	19	3495
LARC	Cawthorn, J. M.	UNIV OF UTAH	NSG 1272	Shepherd, K. P.	39	3503
LARC	Card, M. F.	UNIV OF UTAH	NSG 1313	Resch, R. D.	49	3504
LARC	Martin, D. J.	UNIV OF VIRGINIA	NAS 1-12754	Barnes, D. W.	99	3584

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Will, R. W.	UNIV OF VIRGINIA	NAS 1-14862	Berman, W. J.	22	3585
LARC	Conner, D. W.	UNIV OF VIRGINIA	NAS 1-14908	Kuhlthau, A. R.	49	3586
LARC	Lichtenstein, J. H.	UNIV OF VIRGINIA	NGR 47-005-208	Jacobson, I. R.	41	3594
LARC	Schoenster, J. A.	UNIV OF VIRGINIA	NGR 47-005-219	Haviland, J. K.	41	3595
LARC	Kilgore, R. A.	UNIV OF VIRGINIA	NSG 1010	Zapata, R. N.	41	3596
LARC	Shultz, L. R.	UNIV OF VIRGINIA	NSG 1128	McAlpine, G. A.	45	3597
LARC	Mayes, W. H.	UNIV OF VIRGINIA	NSG 1180	Jacobson, I. D.	41	3598
LARC	Alvarez, J. M.	UNIV OF VIRGINIA	NSG 1256	Singer, S. F.	11	3599
LARC	Snyder, W. J.	UNIV OF VIRGINIA	NSG 1274	Jacobson, I. D.	49	3600
LARC	Bowles, R. L.	UNIV OF VIRGINIA	NSG 1335	Brown, R. L., Jr.	21	3601
LARC	Hueschen, R. M.	UNIV OF VIRGINIA	NSG 1388	Cook, G. E.	49	3602
LARC	Tapscott, R. J.	UNIV OF VIRGINIA	NSG 1399	Jacobson, I. D.	49	3603
LARC	Barker, L. E.	UNIV OF VIRGINIA	NSG 1403	Parrish, E. A., Jr.	22	3604
LARC	Wilkins, J. R.	UNIV OF VIRGINIA	NSG 1406	Stoner, G. E.	49	3605
LARC	Humes, D. H.	UNIV OF VIRGINIA	NSG 1427	Singer, S. F.	11	3606
LARC	Williams, T. S., Jr.	UNIV OF WASHINGTON	NAS 1-9694	Leovy, C. B	31	3656
LARC	Russell, J. M., III	UNIV OF WASHINGTON	NAS 1-14341	Leovy, C. B.	31	3657
LARC	Heyson, H. H	UNIV OF WASHINGTON	NGL 48-002-010	Joppa, R. G.	41	3664
LARC	Heyson, H. H.	UNIV OF WASHINGTON	NGL 48-002-035	Rae, W. H.	41	3665
LARC	Northam, G. B.	UNIV WISC-MADISON	NAS 1-14136	Weinman, J. A.	31	3694
LARC	Campbell, J. W.	UNIV WISC-MADISON	NSG 1196	Johnson, R. A	21	3720
LARC	Young, W. H., Jr.	UNIV WISC-MILWAUKEE	NGR 50-007-001	Bratanow, T.	41	3731
LARC	Crumbly, K. H.	UNIV OF WYOMING	NAS 1-13213	Pepin, T. J.	31	3733
LARC	Hedgepeth, K. D.	UNIV OF WYOMING	NAS 1-13797	Pepin, T. J.	31	3734
LARC	McCormick, M. P.	UNIV OF WYOMING	NAS 1-14373	Pepin, T. J.	31	3735
LARC	McMaster, L. R.	UNIV OF WYOMING	NAS 1-14931	Pepin, T. J.	31	3736
LARC	Hohl, F.	VANDERBILT UNIVERSTY	NSG 1232	Lee, J. H.	13	3313
LARC	Hohl, F.	VANDERBILT UNIVERSTY	NSG 1235	Lee, J. H.	13	3314
LARC	Exton, R. J.	VANDERBILT UNIVERSTY	NSG 1408	Tellinghuisen, J. B.	13	3315
LARC	Wilkins, J. R.	VIRGINIA COMNWLTH U	NGL 47-002-020	Dalton, H. P	51	3612
LARC	Bell, V. L.	VIRGINIA COMNWLTH U	NGR 47-002-041	Stump, B. L	12	3613
LARC	Martin, D. J.	VIRGINIA POLY INST	NAS 1-13175	Robertson, R. M.	49	3615
LARC	Posey, J.	VIRGINIA POLY INST	NAS 1-13884	Nayfeh, A. H.	13	3616
LARC	Anderson, A. F.	VIRGINIA POLY INST	NAS 1-15080	Unavailable	99	3617
LARC	Duberg, J. E	VIRGINIA POLY INST	NGR 47-004-090	Drew, D. R	41	3624
LARC	Hayduk, R. J.	VIRGINIA POLY INST	NGR 47-004-114	Kamat, M. P	44	3625
LARC	Davis, J. G., Jr.	VIRGINIA POLY INST	NGR 47-004-129	Herakovich, C. T	49	3626
LARC	Montgomery, R. C.	VIRGINIA POLY INST	NSG 1015	Cliff, E. M.	41	3627
LARC	Smith, A.	VIRGINIA POLY INST	NSG 1020	Sanzone, G.	13	3628
LARC	Newman, J. C., Jr.	VIRGINIA POLY INST	NSG 1024	Smith, C. W	41	3629
LARC	Johnston, N. J.	VIRGINIA POLY INST	NSG 1064	Wolfe, J. F	12	3630
LARC	Young, P. R.	VIRGINIA POLY INST	NSG 1085	Mason, J. G	12	3631
LARC	Kvaternik, R. G.	VIRGINIA POLY INST	NSG 1114	Meirovitch, L.	41	3632
LARC	Progar, D. J.	VIRGINIA POLY INST	NSG 1124	Wightman, J. P	12	3633
LARC	Tenney, D. R.	VIRGINIA POLY INST	NSG 1214	Houska, C. R.	47	3634
LARC	ONeal, R. L.	VIRGINIA POLY INST	NSG 1230	Drew, S. W	43	3635
LARC	Wichorek, G. R.	VIRGINIA POLY INST	NSG 1238	Henneke, E. G.	49	3636
LARC	Montgomery, R. C.	VIRGINIA POLY INST	NSG 1239	VanLandingham, H. F	41	3637
LARC	Hoffman, E. L.	VIRGINIA POLY INST	NSG 1250	Herakovich, C. T	49	3638
LARC	Hoffman, E. L.	VIRGINIA POLY INST	NSG 1254	Stinchcomb, W. W.	46	3639
LARC	Hefner, J. N.	VIRGINIA POLY INST	NSG 1255	Nayfeh, A. H.	41	3640
LARC	Yates, E. C., Jr	VIRGINIA POLY INST	NSG 1262	Nayfeh, A. H.	41	3641
LARC	Maahs, H. G.	VIRGINIA POLY INST	NSG 1275	Frair, K. L.	19	3642
LARC	Miserentino, R.	VIRGINIA POLY INST	NSG 1276	Hallauer, W. L., Jr	49	3643
LARC	StClair, T. L.	VIRGINIA POLY INST	NSG 1286	Ogharuso, M. A.	12	3644
LARC	Creedon, J. F	VIRGINIA POLY INST	NSG 1354	VanLandingham, H. F	41	3645
LARC	Hefner, J. N	VIRGINIA POLY INST	NSG 1358	Saric, W. S.	41	3646
LARC	Whitcomb, J. D.	VIRGINIA POLY INST	NSG 1364	Reifsnider, K. L	47	3647

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LARC	Campbell, J. W.	VIRGINIA POLY INST	NSG 1376	Myers, R. H.	21	3648
LARC	Tenney, D. R.	VIRGINIA POLY INST	NSG 1382	Louthan, M. R., Jr.	47	3649
LARC	Pellett, G. L.	VIRGINIA POLY INST	NSG 1389	Wightman, J. P.	12	3650
LARC	Slemp, W. S.	VIRGINIA POLY INST	NSG 1428	Taylor, L. T.	12	3651
LARC	Lansing, D. L.	VIRGINIA STATE COL	NGL 47-014-009	Agrawal, K. M.	41	3654
LARC	Singh, J. J.	VIRGINIA STATE COL	NSG 1342	Stronach, C. E.	13	3655
LARC	Williams, T. S., Jr.	WASHINGTON UNIVERSTY	NAS 1-13889	Arvidson, R. E.	39	2653
LARC	Kelly Iv, W L.	WASHINGTON UNIVERSTY	NSG 1084	Arvidson, R. E.	32	2659
LARC	Heyman, J. S.	WASHINGTON UNIVERSTY	NSG 1392	Miller, J. G.	13	2660
LARC	Liu, C. H.	WAYNE STATE UNIV	NSG 1330	Chow, P. L.	41	2568
LARC	Morris, C. E., Jr.	WEST VIRGINIA UNIV	NSG 1412	Gibbs, E. H.	41	3692
LARC	Noonan, K. W.	WICHITA STATE UNIV	NGR 17-003-021	Wentz, W. H., Jr.	41	2154
LARC	McGhee, R. J.	WICHITA STATE UNIV	NSG 1165	Wentz, W. H., Jr.	41	2155
LARC	Quenjo, M. J.	WRIGHT STATE UNIV	NSG 1417	Wells, W. R.	41	3105
LARC	Wood, G. M.	XAVIER UNIV-LA	NSG 1361	Ioup, J. W.	13	2199
LERC	Hippensteele, S. A.	ARIZONA STATE UNIV	NSG 3075	Metzger, D. E.	41	1079
LERC	Morris, J. F.	ARIZONA STATE UNIV	NSG 7019	Jacobson, D. L.	13	1080
LERC	Decker, A. J.	AUBURN UNIV-AUBURN	NSG 3109	Ranson, W. F.	49	1027
LERC	Roth, J. R.	BRIGHAM YOUNG UNIV	NSG 3068	Gardner, A. L.	13	3494
LERC	Herbell, T. P.	BROWN UNIVERSITY	NSG 3118	Richman, M. H.	47	3248
LERC	Gluyas, R. E.	BUCKNELL UNIVERSITY	NSG 3136	Snyder, W. J.	43	3142
LERC	Coe, H. H.	CAL STATE U-NRTHRDGE	NSG 3065	Nypan, L. J.	46	1222
LERC	Priem, R J.	CAL STATE U-SACRAMEN	NGR 05-058-003	Reardon, F. H.	42	1224
LERC	Witzke, W. R.	CARNEGIE-MELLON UNIV	NAS 3-20370	Bhat, G. K.	47	3143
LERC	Klopp, W. D.	CARNEGIE-MELLON UNIV	NGR 39-087-003	Low, J. R., Jr.	47	3144
LERC	Klopp, W. D.	CARNEGIE-MELLON UNIV	NGR 39-087-047	Low, J. R., Jr.	47	3146
LERC	Srawley, J. E.	CARNEGIE-MELLON UNIV	NGR 39-087-053	Swedlow, J. L.	46	3147
LERC	Ludwig, L. P.	CARNEGIE-MELLON UNIV	NSG 3023	Hughes, W. F.	46	3149
LERC	LaBus, T. L.	CASE WESTERN RESERVE	NAS 3-21046	Ostrach, S.	46	3008
LERC	Nichols, L. D.	CASE WESTERN RESERVE	NGL 36-003-064	Reshotko, E.	19	3012
LERC	Glasgow, T K.	CASE WESTERN RESERVE	NGL 36-003-094	Ebert, L. J.	47	3013
LERC	Gray, H. R.	CASE WESTERN RESERVE	NGR 36-027-051	Hehemann, R. H.	47	3015
LERC	Bishop, A R.	CASE WESTERN RESERVE	NGR 36-027-064	Reshotko, E.	41	3017
LERC	Kohl, F. J.	CASE WESTERN RESERVE	NSG 3009	Mateescu, G. D.	12	3019
LERC	Probst, H. B.	CASE WESTERN RESERVE	NSG 3027	Mitchell, T. E.	47	3020
LERC	Fortini, A.	CASE WESTERN RESERVE	NSG 3040	Dybbs, A.	47	3021
LERC	LaBus, T. L.	CASE WESTERN RESERVE	NSG 3053	Ostrach, S.	49	3022
LERC	Bober, L. J.	CASE WESTERN RESERVE	NSG 3058	Reshotko, E.	41	3023
LERC	Sockol, P. M.	CASE WESTERN RESERVE	NSG 3062	Reshotko, E.	41	3024
LERC	Dunning, J. W., Jr.	CASE WESTERN RESERVE	NSG 3074	Angus, J. C.	43	3025
LERC	Brewe, D. E.	CASE WESTERN RESERVE	NSG 3077	Savage, M.	46	3026
LERC	Neustadter, H. E.	CASE WESTERN RESERVE	NSG 3078	Zacks, S.	21	3027
LERC	Nice, A. W.	CASE WESTERN RESERVE	NSG 3085	Pao, J. H.	45	3028
LERC	Anderson, B. H.	CASE WESTERN RESERVE	NSG 3115	Lynch, W. C	41	3029
LERC	Banks, B. A.	CASE WESTERN RESERVE	NSG 3126	Gibbons, D. F.	49	3030
LERC	Robson, R. R.	CASE WESTERN RESERVE	NSG 3131	Topich, J. A.	19	3031
LERC	Serafini, T. T.	CASE WESTERN RESERVE	NSG 3140	Koenig, J. L.	12	3032
LERC	Lauver, R W.	CASE WESTERN RESERVE	NSG 3142	Ritchey, W. M.	12	3033
LERC	Weigand, A. G.	CASE WESTERN RESERVE	NSG 3151	Gibbons, D. F.	53	3034
LERC	Hirschberg, M. H.	CASE WESTERN RESERVE	NSG 7035	Manson, S. S.	47	3036
LERC	Deissler, R. G.	CATHOLIC UNIVERSITY	NGR 09-005-099	Ling, S. C.	41	1761
LERC	Fordyce, J. S.	CENTRAL ST UNIV-OHIO	NGR 36-033-003	Craft, T. J., Sr	51	3037
LERC	Young, S. G.	CHICAGO STATE UNIV	NSG 3030	Treptow, R. S.	99	1974
LERC	Serafini, T. T.	CLARKSON COL OF TECH	NSG 3100	Jellinek, H. H.	12	2793
LERC	Townsend, D. P.	CLEVELAND STATE UNIV	NAS 3-18547	Kasuba, R.	46	3038
LERC	Brown, G. V.	CLEVELAND STATE UNIV	NSG 3144	Chu, C. W.	13	3040
LERC	Ashbrook, R. L.	CLEVELAND STATE UNIV	NSG 3155	Yeh, H. C.	47	3041
LERC	Reynolds, T. W.	COLORADO SCH OF MINE	NSG 3122	Daniel, S. R.	12	1631

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
LERC	Priem, R. J	COLORADO STATE UNIV	NGR 06-002-095	Mitchell, C. F	42	1644
LERC	Kerslake, W. R	COLORADO STATE UNIV	NGR 06-002-112	Wilbur, P. J.	46	1647
LERC	Mattenieks, M. A.	COLORADO STATE UNIV	NGR 06-002-147	Wilhelm, H. E	42	1648
LERC	Brown, G. V	COLORADO STATE UNIV	NGR 06-002-159	Etters, R. D	13	1649
LERC	Kaplin, V. K.	COLORADO STATE UNIV	NSG 3011	Kaufman, H. R.	42	1653
LERC	Homitz, S	COLORADO STATE UNIV	NSG 3038	Kaufman, H. R.	19	1654
LERC	Shubb, D. L	COLORADO STATE UNIV	NSG 3060	Collins, G. J.	13	1655
LERC	Theman, E. R.	COLORADO STATE UNIV	NSG 3086	Kaufman, H. R.	13	1656
LERC	Sockol, P. M	COLORADO STATE UNIV	NSG 3127	Sadeh, W. Z	41	1657
LERC	Berkopec, F. D.	COLORADO STATE UNIV	NSG 3145	Yadlowsky, E. J.	13	1658
LERC	Sater, B. L.	COLORADO STATE UNIV	NSG 3167	Sites, J. R.	13	1659
LERC	Glasgow, T. K	COLUMBIA UNIVERSITY	NSG 3050	Tien, J. K.	47	2817
LERC	Flood, D. J.	CORNELL UNIVERSITY	NGR 33-010-188	Krumhansl, J. A.	13	2854
LERC	Moon, P. R	CORNELL UNIVERSITY	NGR 33-010-189	Ruoff, A. L	47	2855
LERC	Marek, C. J	CORNELL UNIVERSITY	NSG 3019	Gouldin, F. C	41	2862
LERC	Adamis, C. C	CORNELL UNIVERSITY	NSG 3080	Moon, F. C.	41	2863
LERC	Zeleznik, F. J	DREXEL UNIVERSITY	NSG 3090	Rosen, G. H	21	3153
LERC	Grimes, H. H	DREXEL UNIVERSITY	NSG 3128	Lawley, A	47	3154
LERC	Triner, J. E	DUKE UNIVERSITY	NSG 3157	Wilson, T. G	45	2979
LERC	Ford, W. F.	DUKE UNIVERSITY	NSG 3160	Smith, D. A	21	2980
LERC	Jackson, H. D	GEORGE WASHINGTON U	NSG 3130	Wood, F. B	99	1791
LERC	Stevenson, S.	GEORGIA INST OF TECH	NAS 3-19700	Camp, A. A	49	1904
LERC	Stevens, G. H	GEORGIA INST OF TECH	NAS 3-20110	Zimmer, R. P	42	1905
LERC	Huff, R. G	GEORGIA INST OF TECH	NSG 3015	Strahle, W. C	13	1928
LERC	Baumeister, K. J	GEORGIA INST OF TECH	NSG 3036	Zinn, B. T.	41	1929
LERC	Priem, R. J	GEORGIA INST OF TECH	NSG 3052	Zinn, B. T	42	1930
LERC	Wedeven, L. D	GEORGIA INST OF TECH	NSG 3106	Winer, W. O	46	1931
LERC	Braun, W. H	ILL INST OF TECH	NSG 3141	Weinstein, H.	49	1979
LERC	Sockol, P. M.	IOWA STATE UNIV	NSG 3033	Serovy, G. K	41	2101
LERC	Ludwig, L. P	ISRAEL INST OF TECH	NSG 7317	Etsion, I	46	3750
LERC	Anderson, W. J	JACKSON STATE UNIV	NSG 3004	Chu, C. S.	49	2610
LERC	Wintucky, E. G	KENT STATE UNIV-KENT	NSG 3159	Johnson, D. L.	47	3043
LERC	Ashbrook, R. L	LEHIGH UNIVERSITY	NGL 39-007-007	Kraft, R. W	47	3166
LERC	Batterton, P. G	LEHIGH UNIVERSITY	NSG 3162	Rockwell, D. O	41	3172
LERC	McNally, W. D	MASS INST OF TECH	NAS 3-20473	Kerrebrock, J. L.	41	2371
LERC	McNally, W. D	MASS INST OF TECH	NGL 22-009-383	Kerrebrock, J. L.	41	2401
LERC	Holmes, A. G	MASS INST OF TECH	NGR 22-009-339	Witmer, E. A.	41	2409
LERC	Mularz, E. J	MASS INST OF TECH	NGR 22-009-378	Heywood, J. B	43	2410
LERC	Baumeister, K. J	MASS INST OF TECH	NGR 22-009-805	Ingard, K. U	41	2430
LERC	Weinberg, I.	MASS INST OF TECH	NSG 3017	Gatos, H. C	13	2459
LERC	Chamis, C. C.	MASS INST OF TECH	NSG 3044	McGarry, F. G.	49	2460
LERC	Scheuermann, C. M.	MASS INST OF TECH	NSG 3046	Flemings, M. C	47	2461
LERC	Glaser, R. E.	MASS INST OF TECH	NSG 3061	Senturia, S. D	19	2462
LERC	Vary, A	MASS INST OF TECH	NSG 3064	Williams, J. H., Jr	47	2463
LERC	Norgren, C. T.	MASS INST OF TECH	NSG 3076	Keck, J. C.	41	2464
LERC	Adamczyk, J. J	MASS INST OF TECH	NSG 3079	Kerrebrock, J. L.	41	2465
LERC	Reinmann, J. J	MASS INST OF TECH	NSG 3088	Lax, B.	13	2466
LERC	McNally, W. D	MASS INST OF TECH	NSG 3093	Kerrebrock, J. L.	41	2467
LERC	Norgren, C. T.	MASS INST OF TECH	NSG 3102	Howard, J. B.	43	2468
LERC	Baumeister, K. J.	MASS INST OF TECH	NSG 3129	Ungard, K. U	41	2469
LERC	Strange, T. W	MICHIGAN STATE UNIV	NSG 3101	Sharp, W. N., Jr	49	2507
LERC	Fleming, D. P.	MISSISSIPPI STATE U	NSG 3111	Stiffler, A. K	46	2629
LERC	Salzman, J. A.	NEW MEX ST U-LAS CR	NSG 3069	Armstrong, R. L.	13	2758
LERC	LaBus, T. L.	NEW YORK UNIVERSITY	NSG 3059	Keller, J. B	49	2883
LERC	Godlewski, M. P	NO CAROLINA STATE U	NGR 34-002-195	Hauser, J. R	45	2993
LERC	Behrendt, D. R.	NORTHWESTERN UNIV	NGR 14-007-131	Waber, J. T	13	1982
LERC	Ludwig, L. P.	NORTHWESTERN UNIV	NSG 3039	Burton, R. A	47	1985
LERC	Zaretsky, E. V	NORTHWESTERN UNIV	NSG 3042	Cheng, H. S	46	1986

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LERC	Coy, J. J.	NORTHWESTERN UNIV	NSG 3143	Cheng, H. S.	46	1987
LERC	Wedeven, L. D.	NORTHWESTERN UNIV	NSG 3149	Cheng, H. S.	46	1988
LERC	Gray, H. R.	OHIO STATE UNIV	NGL 36-008-051	Beck, F. H.	47	3056
LERC	Britsch, W. R.	PENN STATE U-UNIV PK	NGL 39-009-007	Lakshminarayana, B.	41	3186
LERC	Hirschberg, M. H.	PENN STATE U-UNIV PK	NGR 39-009-034	Zamrik, S. Y.	47	3190
LERC	Priem, R. J.	PENN STATE U-UNIV PK	NGR 39-009-077	Faeth, G. M.	42	3191
LERC	Stone, J. R.	PENN STATE U-UNIV PK	NGR 39-009-270	Arndt, R. E.	41	3193
LERC	Dittmar, J. H.	PENN STATE U-UNIV PK	NGR 39-009-275	Henderson, R. E.	46	3194
LERC	Heidmann, M. F.	PENN STATE U-UNIV PK	NSG 3012	Lakshminarayana, B.	41	3202
LERC	Sanders, W. A.	PENN STATE U-UNIV PK	NSG 3016	Bradt, R. C.	47	3203
LERC	Gelder, T. F.	PENN STATE U-UNIV PK	NSG 3031	Henderson, R. E.	41	3204
LERC	Sockol, P. M.	PENN STATE U-UNIV PK	NSG 3032	Lakshminarayana, B.	41	3205
LERC	Berkopec, F. D.	PENN STATE U-UNIV PK	NSG 3097	Robinson, J. W.	49	3206
LERC	Will, H. A.	POLY INST OF NY	NSG 3108	Lederman, S.	13	2901
LERC	Stone, J. R.	PRINCETON UNIVERSITY	NGR 31-001-307	Plett, E. G.	41	2715
LERC	Minner, G. L.	PURDUE UNIVERSITY	NAS 3-18010	Vaidya, P. G.	41	2055
LERC	Bishop, A. R.	PURDUE UNIVERSITY	NGR 15-005-162	Hoffman, J. D.	41	2067
LERC	Bishop, A. R.	PURDUE UNIVERSITY	NGR 15-005-191	Hoffman, J. D.	41	2068
LERC	Feiler, C. E.	PURDUE UNIVERSITY	NSG 3029	Peterson, A. M.	46	2074
LERC	Davidson, H. W.	PURDUE UNIVERSITY	NSG 3071	LEcuyer, M. R.	41	2075
LERC	Katsanis, T.	PURDUE UNIVERSITY	NSG 3105	Thompson, H. D.	41	2076
LERC	Lehtinen, B.	PURDUE UNIVERSITY	NSG 3119	Leonard, R. G.	41	2077
LERC	Serafini, J. S.	PURDUE UNIVERSITY	NSG 3135	Sullivan, J. P.	41	2078
LERC	Grimes, H. H.	RENSSELAER POLY-NY	NSG 3007	Diefendorf, R. J.	47	2916
LERC	Lad, R. A.	RICE UNIVERSITY	NGL 44-006-001	Rorschach, H. E.	13	3346
LERC	Anderson, W. J	ROCHESTER INST TECH	NSG 3072	Rieger, N. F.	46	2921
LERC	Gaugler, R. E.	STANFORD UNIVERSITY	NAS 3-14336	Kays, W. M.	41	1274
LERC	Whittenberger, J. D.	STANFORD UNIVERSITY	NGR 05-020-671	Sherby, O. D.	47	1329
LERC	Gaugler, R. G.	STANFORD UNIVERSITY	NSG 3124	Kays, W. M.	46	1365
LERC	Weinberg, I.	STATE UNIV NY-ALBANY	NSG 3095	Corbett, J. W.	39	2926
LERC	Holdeman, J. D.	STATE UNIV NY-ALBANY	NSG 3138	Mohnen, V. A.	31	2927
LERC	Morris, J. F.	STATE UNIV NY-BUFFAL	NSG 7071	Shaw, D. T.	13	2938
LERC	Levine, S. R.	STATE U NY-STONY BRK	NGR 33-015-160	Seigle, L. L.	47	2946
LERC	Haggard, J. B.	STATE U NY-STONY BRK	NSG 3051	Berlad, A. L.	43	2951
LERC	Hirschberg, M H.	SYRACUSE UNIVERSITY	NGR 33-022-157	Liu, H. W.	47	2966
LERC	Priem, R. J.	TENNESSEE TECH U	NGR 43-003-015	Ventrice, B.	46	3276
LERC	Priem, R. J.	TEXAS A&I UNIVERSITY	NSG 3112	OHara, J. C.	41	3361
LERC	Titran, R. H.	TUSKEGEE INSTITUTE	NSG 3154	Ramirez, R. P.	47	1034
LERC	Fordyce, J. S.	UNIV OF ALBUQUERQUE	NSG 3092	Urzendowski, R M.	12	2760
LERC	Stephens, J. R.	UNIV CALIF-BERKELEY	NGR 05-003-562	Morris, J. W	47	1414
LERC	Marek, C. J.	UNIV CALIF-BERKELEY	NSG 3028	Daily, J. W.	46	1429
LERC	King, R.	UNIV CALIF-DAVIS	NAS 3-19850	Cahill, T.	39	1444
LERC	Spera, D. A.	UNIV CALIF-L ANGELES	NSG 3082	Friedman, P. P.	46	1494
LERC	Grobman, J. S.	UNIV CALIF-L ANGELES	NSG 3116	English, J. M.	41	1495
LERC	Burkhart, J A.	UNIV CALIF-L ANGELES	NSG 3153	Frederking, T. H.	46	1496
LERC	Woollam, J A.	UNIV CALIF-SAN DIEGO	NSG 3034	Oesterreicher, H.	47	1553
LERC	Haggard, J. B.	UNIV CALIF-SAN DIEGO	NSG 3047	Williams, F. A.	43	1554
LERC	Woollam, J. A.	UNIV CALIF-SAN DIEGO	NSG 3055	Webb G. W.	19	1555
LERC	Woollam, J. A.	UNIV CALIF-SAN DIEGO	NSG 3103	Luo, H. L.	13	1556
LERC	Purvis, C. K.	UNIV CALIF-SAN DIEGO	NSG 3150	Whipple, E. C., Jr.	39	1557
LERC	Rice, E. J.	UNIV OF CANTERBURY	NSG 7192	Eversman, W.	46	3755
LERC	Prust, H. W., Jr.	UNIV OF CINCINNATI	NGR 36-004-064	Tabakoff, W.	41	3075
LERC	Sundberg, G. R.	UNIV OF CINCINNATI	NSG 3022	Henderson, H. T.	45	3080
LERC	Grier, N. T.	UNIV OF CINCINNATI	NSG 3024	Nevin, J. H.	45	3081
LERC	Jones, R. E.	UNIV OF CINCINNATI	NSG 3045	Kauffman, C. W.	41	3082
LERC	Stepka, F. S.	UNIV OF CINCINNATI	NSG 3066	Tabakoff, W.	41	3083
LERC	Blue, J. W.	UNIV OF CINCINNATI	NSG 3091	Jha, S.	13	3084
LERC	Miner, R. V., Jr.	UNIV OF CINCINNATI	NSG 3147	Antolovich, S. D	47	3085

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LERC	Deissler, R. G.	UNIV COLORADO-BOLDR	NGR 06-003-208	Uberoi, M. S.	41	1690
LERC	Hein, G. F.	UNIV OF DAYTON	NAS 3-19699	Engler, N. A.	73	3086
LERC	Stevenson, S. M.	UNIV OF DAYTON	NAS 3-20365	Martino, J.	39	3087
LERC	Entile, L. G.	UNIV OF DAYTON	NAS 3-20392	Engler, N. A.	42	3088
LERC	Post, R. E.	UNIV OF FLORIDA	NGL 10-005-022	Walker, R. D., Jr.	43	1857
LERC	Sheibley, D. W.	UNIV OF FLORIDA	NGR 10-005-182	Walker, R. D., Jr.	43	1862
LERC	Godlewski, M. P.	UNIV OF FLORIDA	NSG 3018	Lindholm, F. A.	45	1866
LERC	Alston, W. B.	UNIV OF FLORIDA	NSG 3120	Butler, G. B.	12	1867
LERC	Gilbert, L. J.	UNIV OF HAWAII-MANOA	NSG 3132	Hwang, H. H.	45	1966
LERC	Bober, L. J.	UNIV ILLINOIS-URBANA	NGL 14-005-140	Chow, W. L.	41	2024
LERC	Karchmer, A. M.	UNIV ILLINOIS-URBANA	NGR 14-005-149	Jones, B. G.	41	2025
LERC	Dunning, J. W., Jr.	UNIV ILLINOIS-URBANA	NGR 14-005-200	Verdeyen, J. T.	13	2029
LERC	Ordin, P.	UNIV ILLINOIS-URBANA	NSG 3008	Strehlow, R. A.	13	2036
LERC	Haggard, J. B.	UNIV ILLINOIS-URBANA	NSG 3043	Strehlow, R. A.	43	2037
LERC	Scribbe, H. W.	UNIV ILLINOIS-URBANA	NSG 3098	Conry, T. F.	46	2038
LERC	Stockman, N. O.	UNIV OF IOWA	NSG 3117	Chou, D. C.	41	2113
LERC	Forestieri, A. F.	UNIV OF KANSAS	NSG 3087	Lenzen, K. H.	46	2145
LERC	Cochran, T. H.	UNIV OF KENTUCKY	NAS 3-20397	Lienhard, J. H	13	2159
LERC	Haggard, J. B.	UNIV OF KENTUCKY	NGR 18-001-083	Hsu, N. N.	13	2165
LERC	Brown, W. F., Jr.	UNIV OF KENTUCKY	NSG 3013	Conrad, H.	47	2169
LERC	Haggard, J. B.	UNIV OF KENTUCKY	NSG 3114	Altenkirch, R. A.	46	2170
LERC	Stephens, J. R.	UNIV OF KENTUCKY	NSG 3125	Conrad, H.	47	2171
LERC	Simoneau, R. J.	UNIV MARYLAND-COL PK	NGR 21-002-344	Sengers, J. V	13	2265
LERC	Coles, W. D.	UNIV MARYLAND-COL PK	NGR 21-002-400	Spain, I. L.	13	2269
LERC	Stephens, J. R.	UNIV MARYLAND-COL PK	NSG 3001	Drew, H. D.	47	2277
LERC	Shannon, J. L., Jr.	UNIV OF MIAMI	NGR 10-007-118	Craig, H. L., Jr.	47	1882
LERC	Ream, L. W.	UNIV MICH-ANN ARBOR	NAS 3-20051	Kroeger, R. A.	46	2513
LERC	Junod, T. L.	UNIV MICH-ANN ARBOR	NGR 23-005-536	Nicholls, J. A.	42	2542
LERC	Cooper, L. P.	UNIV MICH-ANN ARBOR	NSG 3148	Nicholls, J. A.	41	2554
LERC	Beam, L. W.	UNIV MICH-ANN ARBOR	NSG 3161	Bolt, J A.	46	2555
LERC	Sovey, J. S.	U MINN-MNPLS-ST PAUL	NSG 3041	Wehner, G. K.	13	2595
LERC	Morris, J. F.	U MINN-MNPLS-ST PAUL	NSG 3094	Chanin, L. M.	19	2596
LERC	Gutierrez, O. A.	UNIV MISS-UNIVERSITY	NAS 3-19431	Shields, F. D.	41	2631
LERC	Wedeven, L. D.	UNIV MO-ROLLA	NSG 3113	Medrow, R. A.	46	2650
LERC	Hyland, R. F.	UNIV OF NEW MEXICO	NAS 3-19434	Burch, E.	49	2762
LERC	Cochran, T. H.	UNIV OF NOTRE DAME	NAS 3-20087	Kanury, A. M.	12	2083
LERC	Haggard, J. B.	UNIV OF NOTRE DAME	NAS 3-21018	Kanury, A. M.	11	2084
LERC	Feiler, C. E.	UNIV OF NOTRE DAME	NSG 3037	Atassi, H.	41	2085
LERC	Lehtinen, B.	UNIV OF NOTRE DAME	NSG 3048	Welch, W. J.	45	2086
LERC	Haggard, J. B.	UNIV OF NOTRE DAME	NSG 3133	Kanury, A. M.	41	2087
LERC	Fordyce, J. S.	UNIV OF PITTSBURGH	NSG 3002	Liu, C. C.	12	3234
LERC	McBrien, E. F.	UNIV OF PITTSBURGH	NSG 3163	Hamilton, H. B.	45	3235
LERC	Flood, D. J.	UNIV OF PITTSBURGH	NSG 3168	Wallace, W. E.	13	3236
LERC	Triner, J. E.	UNIV OF SO FLORIDA	NSG 3096	Garrett, S. J.	45	1891
LERC	Chubb, D. L.	UNIV SOUTHWESTERN LA	NSG 3049	Matese, J. J.	13	2197
LERC	Dittmar, J. H	UNIV TENNESSEE-KNOXV	NGR 43-001-134	Lunsdaine, E.	41	3296
LERC	Reshotko, M.	UNIV TENNESSEE-KNOXV	NGR 43-001-135	Maus, J. R.	41	3297
LERC	Roth, J. R.	UNIV TEXAS-AUSTIN	NSG 3089	Powers, E. J.	45	3450
LERC	Brandhorst, H. W., Jr.	UNIV TEXAS-EL PASO	NSG 3146	Brient, S. J.	47	3481
LERC	Lehtinen, B.	UNIV OF TOLEDO	NSG 3063	Leininger, G. G.	45	3092
LERC	Lehtinen, B	UNIV OF TOLEDO	NSG 3084	Leininger, G. G	45	3093
LERC	Connolley, D. J.	UNIV OF TOLEDO	NSG 3099	Rush, W. F.	13	3094
LERC	LaBus, T. L.	UNIV OF TOLEDO	NSG 3121	DeWitt, K. J.	49	3095
LERC	Spera, D. A	UNIV OF TOLEDO	NSG 3139	Koza, K. R	41	3096
LERC	Hady, W. F.	UNIV OF TOLEDO	NSG 3156	Keith, T. G	46	3097
LERC	Cunningham, R. E.	UNIV OF VIRGINIA	NSG 3104	Gunter, E. J	46	3608
LERC	Valentine, H. H	UNIV OF WASHINGTON	NSG 3152	Martini, W. R	46	3677
LERC	Shaw, R. J.	VIRGINIA POLY INST	NSG 3073	Jakubowski, A. K.	41	3653

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NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
LERC	Dunning, J. W., Jr.	WAYNE STATE UNIV	NSG 3035	Yu, F. T.	45	2570
LERC	Brandhorst, H. W., Jr.	WAYNE STATE UNIV	NSG 3081	Wang, E. Y.	13	2571
LERC	Phillips, B. R.	WEST VIRGINIA UNIV	NAS 3-19725	Wen, C. Y.	49	3691
LERC	Phillips, B. R.	WEST VIRGINIA UNIV	NSG 3134	Wen, C. Y.	43	3693
LERC	Hsu, L. C.	WILBERFORCE UNIV	NSG 3067	Stickney, P. B.	12	3104
LERC	Godlewski, M. P.	WORCESTER POLY INST	NSG 3137	Lanyon, H. P.	45	2502
LERC	Fryburg, G. C.	YALE UNIVERSITY	NSG 3107	Rosner, D. E.	47	1746
LERC	Godlewski, M. P.	YESHIVA UNIVERSITY	NSG 3123	Pollak, F.	45	2975
LERC	Baker, C. E.	YORK UNIVERSITY	NGR 52-134-005	Schiff, H. I.	31	3744
LERC	Morris, J. F.	OREGON GRADUATE CTR	NSG 3054	Swanson, L. S.	47	3120
MSFC	Downs, S. W., Jr.	ALABAMA A&M UNIV	NGR 01-001-023	Montgomery, O. L.	51	1001
MSFC	Parnell, T. A.	ALABAMA A&M UNIV	NSG 8001	George, M. C.	11	1002
MSFC	Bannister, T. C.	ALABAMA A&M UNIV	NSG 8033	Lal, R. B.	13	1003
MSFC	Bilbro, J. W.	ALABAMA A&M UNIV	NSG 8037	Murty, S. S.	13	1004
MSFC	Humphries, W. R	ALABAMA A&M UNIV	NSG 8041	Saha, H.	46	1005
MSFC	Allen, R. E.	ALABAMA A&M UNIV	NSG 8042	Savage, J.	51	1006
MSFC	Snyder, R. S.	ALABAMA A&M UNIV	NSG 8051	Gibson, W. L.	51	1007
MSFC	Gould, J. M.	ALABAMA A&M UNIV	NSG 8057	Shiva, S. G.	45	1008
MSFC	Kent, M. I.	ALCORN STATE UNIV	NSG 8036	Latif, A	51	2609
MSFC	Taylor, K. R	ALFRED UNIVERSITY	NAS 8-31711	Lacourse, W. C.	19	2779
MSFC	Lee, G.	ARIZONA STATE UNIV	NAS 8-32230	Woodfill, M. C.	21	1074
MSFC	Camp, D.	ARIZONA STATE UNIV	NAS 8-32357	Logan, E., Jr.	31	1075
MSFC	Fountain, J. A.	ATHENS STATE COLLEGE	NAS 8-28058	McNutt, R. C.	13	1009
MSFC	Zwiener, J. M.	ATHENS STATE COLLEGE	NAS 8-31731	Workman, G. L.	12	1010
MSFC	Finnell, S. E.	ATHENS STATE COLLEGE	NAS 8-32220	Martin, A. M.	13	1011
MSFC	Finnell, S. E.	ATHENS STATE COLLEGE	NAS 8-32221	Workman, G. L.	13	1012
MSFC	Shriver, E. L.	ATHENS STATE COLLEGE	NAS 8-32483	McNutt, R. C.	43	1013
MSFC	Curry, J. E.	ATLANTA UNIVERSITY	NSG 8019	Reed, J. L.	12	1893
MSFC	Downs, S. W., Jr.	AUBURN UNIV-AUBURN	NAS 8-29856	Hagler, T. B.	51	1014
MSFC	Cummings, R. E.	AUBURN UNIV-AUBURN	NAS 8-30654	Vachon, R. I.	22	1015
MSFC	Keer, J. H.	AUBURN UNIV-AUBURN	NAS 8-31223	Pinson, L. J.	45	1016
MSFC	Matheney, J. L.	AUBURN UNIV-AUBURN	NAS 8-31572	Carroll, B. D	45	1017
MSFC	Huffman, J. D.	AUBURN UNIV-AUBURN	NAS 8-32215	Vachon, R. I.	39	1018
MSFC	Routh, D. E.	AUBURN UNIV-AUBURN	NAS 8-32633	Cook, K. B.	49	1019
MSFC	Routh, D. E.	AUBURN UNIV-AUBURN	NAS 8-32634	Kerns, D. V.	49	1020
MSFC	Shackleford, B. W., Jr.	AUBURN UNIV-AUBURN	NCA 8-120	Sforzini, R. H.	43	1022
MSFC	Shackleford, B. W., Jr.	AUBURN UNIV-AUBURN	NCA 8-124	Sforzini, R. H.	43	1023
MSFC	Shackelford, B. W., Jr.	AUBURN UNIV-AUBURN	NCA 8-125	Sforzini, R. H.	43	1024
MSFC	Nola, F. J.	AUBURN UNIV-AUBURN	NCA 8-128	Russell, D.	43	1025
MSFC	Daniel, C. C.	AUBURN UNIV-AUBURN	NSG 8047	Flood, C. A., Jr.	49	1028
MSFC	Hastings, L. J	BALL STATE UNIVERSTY	NCA 8-121	Cosby, R. M.	49	2043
MSFC	Hastings, L. J.	BALL STATE UNIVERSTY	NCA 8-127	Cosby, R. M.	49	2044
MSFC	Hastings, L. J.	BALL STATE UNIVERSTY	NCA 8-129	Cosby, R. M.	49	2045
MSFC	Krome, H. O.	CALIF INST OF TECH	NAS 8-27978	Stone, E. C.	11	1169
MSFC	Gross, L. A.	CALIF INST OF TECH	NAS 8-29313	Acosta, A. J.	46	1170
MSFC	Schafer, C. F.	CASE WESTERN RESERVE	NAS 8-31802	Ostrach, S.	46	3010
MSFC	Schafer, C. F.	CASE WESTERN RESERVE	NAS 8-31907	Ostrach, S.	12	3011
MSFC	Tatler, K. R	CLARKSON COL OF TECH	NAS 8-31708	Cole, R.	19	2791
MSFC	Taylor, K. R	CLARKSON COL OF TECH	NAS 8-31709	Wilcox, W. R.	19	2792
MSFC	Cliff, W. C.	COLORADO STATE UNIV	NAS 8-31237	Winn, C. B	46	1636
MSFC	Fichtl, G. H.	COLORADO STATE UNIV	NAS 8-31347	Winn, C. B.	49	1637
MSFC	Fichtl, G. H.	COLORADO STATE UNIV	NAS 8-31673	Edwards, H. W.	46	1638
MSFC	Fichtl, G. H.	COLORADO STATE UNIV	NAS 8-31688	Sandhorn, V. A.	44	1639
MSFC	Manning, H. S.	COLUMBIA UNIVERSITY	NAS 8-30753	Novick, R.	11	2806
MSFC	Seltzer, S. M	COLUMBIA UNIVERSITY	NAS 8-32212	Likins, P. W.	19	2807
MSFC	Nerren, B. H.	CORNELL UNIV-MED CTR	NAS 8-31513	Rubin, A. L.	99	2872
MSFC	Hill, K.	DREXEL UNIVERSITY	NAS 8-31235	Kreitzberg, C. W.	31	3152
MSFC	Kroes, R. L.	FISK UNIVERSITY	NGR 43-021-002	Silberman, E.	13	3264

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
MSFC	Parnell, T. A.	FISK UNIVERSITY	NSG 8035	Mickens, R. E.	12	3265
MSFC	Eudy, R. G.	GEORGIA INST OF TECH	H-23602B	Brown, J.	47	1899
MSFC	Kerr, J. H.	GEORGIA INST OF TECH	NAS 8-30246	Callen, W. R.	13	1911
MSFC	Bianca, C. J.	GEORGIA INST OF TECH	NAS 8-30617	Hanagud, S. V.	19	1912
MSFC	Paludan, C. T.	GEORGIA INST OF TECH	NAS 8-30653	Dees, J. W.	39	1913
MSFC	Smith, O. E.	GEORGIA INST OF TECH	NAS 8-30657	Justus, C. G.	49	1914
MSFC	Kerr, J. H.	GEORGIA INST OF TECH	NAS 8-31193	Callen, W. R.	13	1915
MSFC	Smith, H. F.	GEORGIA INST OF TECH	NAS 8-31344	Walsh, J. R.	13	1916
MSFC	Downs, S. W., Jr.	GEORGIA INST OF TECH	NAS 8-31850	Dees, J. W.	39	1917
MSFC	Downs, S. W., Jr.	GEORGIA INST OF TECH	NAS 8-31990	Faust, C. E.	32	1918
MSFC	Downs, S. W., Jr.	GEORGIA INST OF TECH	NAS 8-32397	Shackelford, R. G.	39	1919
MSFC	Paludan, C. T.	GEORGIA SOUTHWTN COL	NAS 8-30884	Arden, D. D.	32	1935
MSFC	Kroes, R. L.	GRAMBLING STATE UNIV	NGR 19-011-016	Murty, A. N.	13	2179
MSFC	Chappell, C. R.	GRAMBLING STATE UNIV	NSG 8034	Cummings, W. D.	13	2180
MSFC	Unavailable	HARVARD UNIVERSITY	NAS 5-3949	Goldberg, L.	11	2325
MSFC	Snoddy, W. C.	HARVARD UNIVERSITY	NAS 8-31374	Vaiana, G. S.	13	2330
MSFC	Bordelon, C. S.	HARVARD UNIVERSITY	NAS 8-31549	Noyes, R. W.	13	2331
MSFC	Schafer, C. F	HOWARD UNIVERSITY	NAS 8-31605	Ukanwa, A. O.	47	1799
MSFC	Kent, M. I.	JACKSON STATE UNIV	NSG 8026	[illegible] F.	39	2611
MSFC	Taylor, K. R.	LEHIGH UNIVERSITY	NAS 8-31706	[illegible]erHoff, J. W	19	3158
MSFC	Taylor, K. K.	LEHIGH UNIVERSITY	NAS 8-31707	Micale, E. J.	19	3159
MSFC	Scott, F. E.	LEHIGH UNIVERSITY	NAS 8-32124	VanDerHoff, J. W	51	3160
MSFC	Reeves, F. A.	LEHIGH UNIVERSITY	NAS 8-32399	VanDerHoff, J. W.	61	3161
MSFC	Kornfield, D. M.	LEHIGH UNIVERSITY	NAS 8-32406	VanDerHoff, J. W.	51	3162
MSFC	Reeves, F. A.	LEHIGH UNIVERSITY	NAS 8-32657	VanDerHoff, J. W	59	3163
MSFC	Fichtl, G. H.	LEHIGH UNIVERSITY	NCA 8-123	Poehlein, G. W.	12	3165
MSFC	Hamby, H. G.	LA ST U&A&M COL-BRGE	NAS 8-30380	Farmer, R. C.	13	2181
MSFC	Bodie, W. G.	MASS INST OF TECH	NAS 8-27972	Bradt, H. V.	11	2382
MSFC	Jordan, W.	MASS INST OF TECH	NAS 8-27975	Lewin, W. H.	11	2383
MSFC	Davidson, M. C.	MASS INST OF TECH	NAS 8-30537	Gatos, H. C.	47	2384
MSFC	Adams, W. R.	MASS INST OF TECH	NAS 8-30576	Gatos, H. C.	19	2385
MSFC	Manning, H. S.	MASS INST OF TECH	NAS 8-30752	Clark, G. W.	11	2386
MSFC	Chassay, R. P.	MASS INST OF TECH	NAS 8-31350	Uhlmann, D. R.	47	2387
MSFC	Reeves, F. A.	MASS INST OF TECH	NAS 8-31552	Uhlmann, D. R.	47	2388
MSFC	Dalins, I.	MASS INST OF TECH	NGL 22-009-125	Gatos, H. C.	13	2398
MSFC	Patterson, W. C.	MEMPHIS ST UNIV	NAS 8-31189	Perry, E.	46	3267
MSFC	Routh, D. E.	MISSISSIPPI STATE U	NAS 8-26749	Gassaway, J. D.	13	2613
MSFC	Pitts, E. H.	MISSISSIPPI STATE U	NAS 8-30618	Rogers, T. W.	45	2614
MSFC	Wallace, G. R	MISSISSIPPI STATE U	NAS 8-31373	Ingels, F. M.	45	2615
MSFC	Darden, J. H.	MISSISSIPPI STATE U	NAS 8-31568	Mitchell, G.	41	2616
MSFC	Clever, W. W.	MISSISSIPPI STATE U	NAS 8-31770	Shepard, W. S.	41	2617
MSFC	Rose, S.	MISSISSIPPI STATE U	NAS 8-32214	Jones, E. W.	46	2618
MSFC	King, H. M.	MISSISSIPPI STATE U	NCA 8-107	Hall, W. B.	47	2619
MSFC	Wolverton, B. C.	MISS VALLEY ST UNIV	NSG 8009	Sethi, S. L.	51	2630
MSFC	Stephens, J. B.	MOREHOUSE COLLEGE	NGL 11-008-001	Gales, J. N.	12	1937
MSFC	Shriver, E. L.	MOREHOUSE COLLEGE	NSG 8014	Spight, C.	13	1940
MSFC	Stone, N. H.	MOREHOUSE COLLEGE	NSG 8020	Turner, J. M.	13	1941
MSFC	Clemons, J. M.	MOREHOUSE COLLEGE	NSG 8030	Frazier, D. O.	12	1942
MSFC	Vaughn, W. W.	MOREHOUSE COLLEGE	NSG 8039	Spight, C.	13	1943
MSFC	Burch, J. L.	MOREHOUSE COLLEGE	NSG 8043	Turner, J. M.	13	1944
MSFC	Clemons, J. M.	MOREHOUSE COLLEGE	NSG 8049	Hall, J. H., Jr.	12	1945
MSFC	Patterson, W. J.	MORRIS BROWN COLLEGE	NSG 8027	Weaver, F.	12	1946
MSFC	Jones, C. O.	NO CAR A&T STATE U	NSG 8045	Sharma, A. V.	46	2987
MSFC	Paludan, C. T.	NO CAROLINA STATE U	NAS 8-31984	Welby, G.	39	2990
MSFC	Downs, S. W., Jr.	NORTH GEORGIA COL	NAS 8-30619	Biesbrock, J. A.	51	1947
MSFC	Costes, N. C.	OHIO STATE UNIV	NAS 8-31195	Mueller, I. I.	19	3054
MSFC	Bannister, T. C.	PAINE COLLEGE	NSG 8002	Owais, M.	13	1948
MSFC	Fichtl, G. H.	PENN STATE U-UNIV PK	NAS 8-32046	Blackadar, A. K.	31	3184

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
MSFC	Reeves, F. A.	PRINCETON UNIVERSITY	NAS 8-32614	Saville, D. A.	51	2705
MSFC	Davidson, M. C.	RENSSELAER POLY-NY	NAS 8-26146	Wiedmann, H.	47	2903
MSFC	Adams, W. R.	RENSSELAER POLY-NY	NAS 8-28307	Wiedemeier, H.	19	2904
MSFC	Adams, W. R.	RENSSELAER POLY-NY	NAS 8-30578	Wiedemeier, H.	19	2905
MSFC	Reeves, F. A.	RENSSELAER POLY-NY	NAS 8-32425	Glicksman, M. E.	47	2906
MSFC	Davidson, M. C.	RENSSELAER POLY-NY	NAS 8-32639	Wiedemeier, H.	19	2907
MSFC	Berge, L. H.	RICE UNIVERSITY	NAS 8-32030	Margrave, J. L.	13	3342
MSFC	Greenleaf, J.	ST LOUIS UNIVERSITY	NSG 2023	VanBeaumont, W.	53	2637
MSFC	Jayroe, R. R., Jr.	SAVANNAH STATE COL	NSG 8048	Pao, M. T.	45	1950
MSFC	Urban, E. W.	SO CAROLINA ST COL	NSG 8044	Payne, J. E.	13	3253
MSFC	Kent, M. I.	SO UNIV-BATON ROUGE	NGR 19-005-003	Liu, K. H.	19	2186
MSFC	Williamson, J. G.	SO UNIV-BATON ROUGE	NSG 8025	Tabony, J.	46	2190
MSFC	Trenkle, J. J.	SO UNIV-BATON ROUGE	NSG 8028	Anderson, J. A.	45	2191
MSFC	Trenkle, J. J.	SO UNIV-BATON ROUGE	NSG 8029	Fernald, F. G.	46	2192
MSFC	White, J. B.	SO UNIV-BATON ROUGE	NSG 8053	Montgomery, V. T.	45	2193
MSFC	Bass, B. G.	STANFORD UNIVERSITY	NAS 8-31571	Walker, A. B., Jr.	13	1280
MSFC	Roberts, W.	STANFORD UNIVERSITY	NAS 8-31769	DaRosa, A. V.	13	1281
MSFC	Snoddy, W. C.	STANFORD UNIVERSITY	NAS 8-32263	Underwood, J. H.	11	1282
MSFC	Potter, R.	STANFORD UNIVERSITY	NAS 8-32355	Fairbank, W. M.	13	1283
MSFC	Urban, E. W.	STANFORD UNIVERSITY	NAS 8-32605	Everitt, C. W.	13	1284
MSFC	Potter, R. A.	STANFORD UNIVERSITY	NGR 05-020-019	Fairbank, W. M.	13	1317
MSFC	Weinberg, J. L.	STATE UNIV NY-ALBANY	NAS 8-31902	Schuerman, D. W.	39	2923
MSFC	Clifton, K. S.	STATE UNIV NY-ALBANY	NAS 8-32485	Schuerman, D W.	31	2924
MSFC	Gary, G. A.	STATE UNIV NY-ALBANY	NSG 8040	Smith, W. H.	11	2933
MSFC	Nerren, B. H.	STATE UNIV NY-BUFFAL	NAS 8-31953	Grusha, E.	12	2935
MSFC	Dalins, I.	TALLADEGA COLLEGE	NGR 01-007-009	Breecher, J.	13	1029
MSFC	Humphries, W. R.	TENNESSEE STATE UNIV	NSG 8012	Hougton, R.	46	3271
MSFC	Kent, M. I.	TENNESSEE STATE UNIV	NSG 8032	Burns, R. G.	46	3272
MSFC	Kadrmas, K. A.	TENNESSEE TECH U	NAS 8-31252	Childress, R. Q.	45	3273
MSFC	Humphries, W. R.	TENNESSEE TECH U	NAS 8-31564	Griggs, E. I.	31	3274
MSFC	Humphries, W. R.	TENNESSEE TECH U	NCA 8-102	Griggs, E. I.	45	3275
MSFC	Nowakowski, M. F.	TEXAS A&M UNIVERSITY	NAS 8-26379	Porter, W. A.	45	3366
MSFC	Fichtl, G. H.	TEXAS A&M UNIVERSITY	NAS 8-31234	Brundidge, K. C.	31	3367
MSFC	Turner, R. E.	TEXAS A&M UNIVERSITY	NAS 8-31773	Scoggins, J. R.	31	3368
MSFC	Nowakowski, M. F.	TEXAS A&M UNIVERSITY	NAS 8-32527	Parker, D. L.	13	3369
MSFC	Crowell, C. S.	TUSKEGEE INSTITUTE	NSG 8003	Doreswamy, C. V.	45	1035
MSFC	Young, L. E.	TUSKEGEE INSTITUTE	NSG 8038	Doreswamy, C. V.	45	1036
MSFC	Brantley, L. W	TUSKEGEE INSTITUTE	NSG 8054	Sellers, J. P., Jr.	46	1037
MSFC	Parnell, T. A.	UNIV ALA-HUNTSVILLE	NAS 8-24953	Gregory, J. C.	13	1039
MSFC	Tandberghanssen, E.	UNIV ALA-HUNTSVILLE	NAS 8-28097	Wu, S. T.	13	1040
MSFC	Swenson, G. R.	UNIV ALA-HUNTSVILLE	NAS 8-28248	Hermann, R	42	1041
MSFC	Adams, W. R.	UNIV ALA-HUNTSVILLE	NAS 8-28304	Walter, H. U.	19	1042
MSFC	Decher, R.	UNIV ALA-HUNTSVILLE	NAS 8-29316	Hendricks, J. B.	99	1043
MSFC	Smith, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-30247	Hung, R. J.	31	1044
MSFC	Chappell, C. R.	UNIV ALA-HUNTSVILLE	NAS 8-30563	Rush, J. E.	13	1045
MSFC	Parnell, T. A.	UNIV ALA-HUNTSVILLE	NAS 8-31170	Gregory, J. C.	13	1046
MSFC	West, G. S., Jr.	UNIV ALA-HUNTSVILLE	NAS 8-31171	Hung, R. J.	39	1047
MSFC	Teuber, D. L.	UNIV ALA-HUNTSVILLE	NAS 8-31194	Knezevich, F. M	13	1048
MSFC	Bowden, D. R.	UNIV ALA-HUNTSVILLE	NAS 8-31293	Christiensen, D.	13	1049
MSFC	Smith, R. E.	UNIV ALA-HUNTSVILLE	NAS 8-31321	Hung, R. J.	31	1050
MSFC	Bensko, J.	UNIV ALA-HUNTSVILLE	NAS 8-31345	Doyle, L	32	1051
MSFC	Vaughn, O. H	UNIV ALA-HUNTSVILLE	NAS 8-31729	Hung, R. J.	13	1052
MSFC	Fishman, G. J.	UNIV ALA-HUNTSVILLE	NAS 8-31895	Gregory, J. C.	13	1053
MSFC	Clifton, K. S.	UNIV ALA-HUNTSVILLE	NAS 8-32225	Stuhlinger, E.	11	1054
MSFC	Whitaker, A. F	UNIV ALA-HUNTSVILLE	NAS 8-32398	Castle, J. G.	13	1055
MSFC	Carey, W. T., Jr.	UNIV ALA-HUNTSVILLE	NAS 8-32608	Carter, E. A.	45	1056
MSFC	Morton, R. R.	UNIV ALA-TUSCALOOSA	NAS 8-29100	April, G. C.	49	1059
MSFC	Bensko, J.	UNIV ALA-TUSCALOOSA	NAS 8-29937	Stow, S. H.	32	1060

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
MSFC	Moore, W. W., Jr.	UNIV ALA-TUSCALOOSA	NAS 8-30479	Liu, H. K.	13	1061
MSFC	Schutzenhofer, L. A.	UNIV ALA-TUSCALOOSA	NAS 8-30624	Doughty, J. O.	46	1062
MSFC	Bensko, J.	UNIV ALA-TUSCALOOSA	NAS 8-31979	Hughes, T.	13	1063
MSFC	Finnell, S. E.	UNIV ALA-TUSCALOOSA	NAS 8-32386	Liu, H. K.	13	1064
MSFC	Linton, R. C.	UNIV ALA-TUSCALOOSA	NAS 8-32481	Desmedt, D.	12	1065
MSFC	Allen, R. E.	UNIV OF ARIZONA	NAS 8-29566	Bier, M.	13	1092
MSFC	Miller, E. R.	UNIV OF ARIZONA	NAS 8-31192	Sonett, C. P.	11	1093
MSFC	Miller, E. R.	UNIV OF ARIZONA	NAS 8-31196	Sonett, C. P.	11	1094
MSFC	Allen, R. E.	UNIV OF ARIZONA	NAS 8-31537	Bier, M.	47	1095
MSFC	Snyder, R. S.	UNIV OF ARIZONA	NAS 8-31948	Bartels, P. H.	51	1096
MSFC	Griner, D. B.	UNIV OF ARIZONA	NAS 8-32127	Slater, P. N.	11	1097
MSFC	Falls, L. W.	UNIV ARKANSAS-FAYETV	NAS 8-31550	Tubbs, J. D.	31	1149
MSFC	Huffaker, R. M.	UNIV ARKANSAS-FAYETV	NAS 8-31771	Skeith, R. W.	31	1150
MSFC	Ondrak, B. T.	UNIV CALIF-BERKELEY	NAS 8-29603	Price, P. B.	13	1384
MSFC	Roberts, W. T.	UNIV CALIF-BERKELEY	NAS 8-31346	Mozel, F. S.	19	1385
MSFC	Jex, D.	UNIV CALIF-BERKELEY	NAS 8-32577	Bowyer, S.	11	1386
MSFC	Adams, W. R.	UNIV CALIF-L ANGELES	NAS 8-30579	Yue, A. S.	19	1468
MSFC	Page, M. A.	UNIV CALIF-L ANGELES	NAS 8-32571	Coleman, P. J., Jr.	32	1469
MSFC	Jordan, W. E.	UNIV CALIF-SAN DIEGO	NAS 8-27974	Peterson, L. E.	11	1525
MSFC	Oran, W. A.	UNIV CALIF-SAN DIEGO	NAS 8-31145	McIlwain, C. E.	13	1526
MSFC	Bass, B. G.	UNIV COLORADO-BOLDR	NAS 8-31378	Dulk, G. A.	13	1676
MSFC	Jex, D.	UNIV COLORADO-BOLDR	NAS 8-31958	Toomre, J.	39	1677
MSFC	Bass, B. G.	UNIV COLORADO-BOLDR	NAS 8-32364	Dulk, G. A.	11	1678
MSFC	Camp, D. W.	UNIV OF DAYTON	NAS 8-31294	Leurs, J. K.	41	3090
MSFC	Camp, D.	UNIV OF DAYTON	NAS 8-32111	Luers, J. K.	41	3091
MSFC	Schell, J. T.	UNIV OF FLORIDA	NAS 8-20247	Patterson, E. P.	12	1852
MSFC	Taylor, K. R.	UNIV OF FLORIDA	NSG 8031	Goldberg, E. P.	19	1872
MSFC	Clingman, J. H.	UNIV OF GEORGIA	NAS 8-31565	Burkhard, D. G.	13	1952
MSFC	Wasserman, D.	UNIV OF GEORGIA	NAS 8-32149	Burkhard, D. G.	13	1953
MSFC	Rayroe, R. G.	UNIV OF KANSAS	NSG 8046	Lien, Y. E.	32	2153
MSFC	Paludan, C. T.	UNIV OF KENTUCKY	NAS 8-31006	Zaneveld, J. R.	39	2160
MSFC	Gross, L. A.	UNIV OF LOUISVILLE	NAS 8-31233	Childs, D. W.	42	2173
MSFC	Scott, F. E.	UNIV MARYLAND-COL PK	NAS 8-32148	Colwell, R. R.	51	2245
MSFC	Ruff, R. C.	UNIV MICH-ANN ARBOR	NAS 8-31987	Carignan, G. R.	19	2526
MSFC	Chappell, C. R.	UNIV MICH-ANN ARBOR	NAS 8-32332	Carignan, G. R.	19	2527
MSFC	Jones, C. O.	UNIV MICH-ANN ARBOR	NAS 8-32569	Torr, M. R.	19	2528
MSFC	Ruff, R. C.	UNIV MICH-ANN ARBOR	NAS 8-32661	Carignan, G. R.	39	2529
MSFC	Krome, H. O.	U MINN-MNPLS-ST PAUL	NAS 8-27977	Waddington, C. J.	11	2581
MSFC	Roberts, W. T.	U MINN-MNPLS-ST PAUL	NAS 8-31510	Winckler, J. R.	13	2582
MSFC	Paludan, C. T.	UNIV MISS-UNIVERSITY	NAS 8-32218	Walsh, D. E.	32	2632
MSFC	Smith, R. E.	UNIV MO-COLUMBIA	NAS 8-31150	Plummer, P. L.	31	2639
MSFC	Paludan, C. T.	UNIV MO-COLUMBIA	NAS 8-31767	Barr, P. J.	39	2640
MSFC	Smith, R. E.	UNIV MO-COLUMBIA	NAS 8-31849	Kassner, J. L.	31	2641
MSFC	Smith, R. E.	UNIV MO-ROLLA	NAS 8-31538	Stampfer, J. F. Jr.	13	2645
MSFC	Geller, G.	UNIV MO-ROLLA	NSG 8055	Summers, D. A.	47	2651
MSFC	Johnston, J. D.	UNIV NEBRASKA-LINCLN	NAS 8-31897	Kersten, L.	46	2672
MSFC	Smith, R. E.	UNIV NEVADA-DRI	NAS 8-31470	Squires, P.	31	2676
MSFC	Schrick, B. J.	UNIV NEVADA-DRI	NAS 8-31776	Squires, P.	31	2677
MSFC	Smith, R. E.	UNIV OF NEVADA-RENO	NAS 8-31441	Telford, J. W.	19	2679
MSFC	Smith, R. E.	UNIV OF NEVADA-RENO	NAS 8-31780	Squires, P.	31	2680
MSFC	Schrick, B. J.	UNIV OF NEVADA-RENO	NAS 8-32313	Kocmond, W. C.	31	2681
MSFC	Parnell, T. A.	UNIV N CAR-CHPL HILL	NAS 8-26601	Childs, C. B.	13	3005
MSFC	Turner, R. E.	UNIV OKLAHOMA-NORMAN	NAS 8-31333	Inman, R. L	31	3114
MSFC	Camp, D. W.	UNIV OKLAHOMA-NORMAN	NAS 8-31377	McCarthy, J.	31	3115
MSFC	Allen, R. E.	UNIV ORGEON-HLTH CTR	NAS 8-30887	Knox, R. J.	51	3136
MSFC	Harwell, R. J.	UNIV ORGEON-HLTH CTR	NAS 8-31386	Brooks, D. E.	59	3137
MSFC	Nerren, B. H.	UNIV ORGEON-HLTH CTR	NAS 8-31899	Brooks, D. E.	51	3138
MSFC	Scott, F. E.	UNIV ORGEON-HLTH CTR	NAS 8-32162	Knox, R. J.	59	3139

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
MSFC	Reeves, F. A.	UNIV ORGEON-HLTH CTR	NAS 8-32353	Brooks, D. E.	51	3140
MSFC	Reeves, F. A.	UNIV ORGEON-HLTH CTR	NAS 8-32609	Seaman, G. V.	51	3141
MSFC	Taylor, K. R	UNIV OF PENNSYLVANIA	NAS 8-31702	Zemel, J. N.	19	3218
MSFC	Parnell, T. A.	UNIV SAN FRANCISCO	NAS 8-26758	Benton, E. V.	13	15[illegible]
MSFC	Lowrey, D. O.	UNIV SO CAROLINA-COL	NAS 8-28660	Fellers, R. G.	45	3254
MSFC	Caruso, S. V.	UNIV OF SO FLORIDA	NAS 8-31172	Sergent, J.	45	1888
MSFC	Adams, W. R.	UNIV OF SOUTHERN CAL	NAS 8-28305	Wilcox, W. R.	19	1617
MSFC	Ruff, R. C.	UNIV OF SOUTHERN CAL	NAS 8-29847	Wilcox, W. R.	13	1618
MSFC	Hertsgaard, H. B.	UNIV TENNESSEE-KNOXV	NAS 8-27296	Kennedy, E. J.	42	3281
MSFC	Huggins, C.	UNIV TENNESSEE-KNOXV	NAS 8-29271	Gonzalez, R. C.	45	3282
MSFC	Camp, D. W.	UNIV TENNESSEE-KNOXV	NAS 8-29584	Frost, W.	46	3283
MSFC	Escue, W. T.	UNIV TENNESSEE-KNOXV	NAS 8-31143	Rehder, J. B.	39	3284
MSFC	Hill, K.	UNIV TENNESSEE-KNOXV	NAS 8-31718	Frost, W.	31	3285
MSFC	Paludan, C. T.	UNIV TENNESSEE-KNOXV	NAS 8-31980	Shahrokhi, F.	39	3286
MSFC	Vaughan, O. H	UNIV TENNESSEE-KNOXV	NAS 8-32031	Connell, J. R.	31	3287
MSFC	Bensko, J.	UNIV TENNESSEE-KNOXV	NAS 8-32034	Shahrokhi, F.	32	3288
MSFC	Fichtl, G. H.	UNIV TENNESSEE-KNOXV	NAS 8-32118	Frost, W.	31	3289
MSFC	Schafer, C. F.	UNIV TENNESSEE-KNOXV	NAS 8-32484	Collins, F.	47	3290
MSFC	Anderson, J.	UNIV TENNESSEE-KNOXV	NAS 8-32611	Keller, V.	39	3291
MSFC	Camp, D. W.	UNIV TENNESSEE-KNOXV	NAS 8-32635	Kohl, R. H.	31	3292
MSFC	Williams, J. R.	UNIV TEXAS-AUSTIN	NAS 8-31459	Henize, K.	11	3427
MSFC	Chappell, C. R	UNIV TEXAS-DALLAS	NAS 8-31775	Hanson, W. B.	19	3468
MSFC	Chappell, C. R.	UNIV TEXAS-S ANTONIO	NAS 8-32584	Burch, J. L.	31	3487
MSFC	Goetz, O. K.	UNIV OF VIRGINIA	NAS 8-31951	Gunter, E. J.	46	3590
MSFC	Odell, C. R	UNIV WISC-MADISON	NAS 8-29387	Code, A. D.	11	3709
MSFC	Schrick, B. J	UNIV OF WYOMING	NAS 8-32067	Vali, G.	31	3737
MSFC	Reeves, F. A.	UNIV OF WYOMING	NAS 8-32486	Saunders, C.	47	3738
MSFC	Chappell, C. R.	UTAH STATE UNIV	NAS 8-32636	Ratti, W. J.	31	3507
MSFC	Nichols, R. L.	VANDERBILT UNIVERSTY	NAS 8-30656	Kinser, D. L.	13	3309
MSFC	Brennecke, M. W.	VANDERBILT UNIVERSTY	NAS 8-31556	Wert, J. J.	47	3310
MSFC	Caruso, S. V	VANDERBILT UNIVERSTY	NAS 8-32437	Kinser, D. L	49	3311
MSFC	Yates, I. C., Jr.	WASHINGTON ST UNIV	NAS 8-29725	Johnson, A. A	47	3687
MSFC	Krome, H. O	WASHINGTON UNIVERSTY	NAS 8-27976	Israel, M. H.	11	2655
MSFC	Daniels, J. L., Jr.	WASHINGTON UNIVERSTY	NAS 8-32354	Eastwood, L.	39	2656
MSFC	Allen, R. E	WAYNE STATE UNIV	NAS 8-29823	Brown, R. K.	47	2567
MSFC	Espy, P. N	XAVIER UNIV-LA	NSG 8050	Joup, J. W.	39	2200
NSTL	Joyce, A. T	JACKSON STATE UNIV	NSG 9016	Nelson, F. R.	39	2612
NSTL	Rusoff, L. L	LA ST U&A&M COL-BRGE	NAS13-38	Wolverton, V. C.	59	2182
NSTL	Stocks, P.	UNIV SO MISSISSIPPI	NAS13-23	Wolverton, V. C.	51	2633
NSTL	Wolverton, B. C.	UNIV SO MISSISSIPPI	NAS13-54	Stocks, P.	51	2634
WFC	Rossi, L. C	CITY COLLEGE OF N Y	NAS 6-2439	Pierson, W. J	32	2782
WFC	Stanley, H. R.	COLUMBIA UNIVERSITY	NAS 6-2455	Kuo, J. T.	33	2804
WFC	Stanley, H. R.	COLUMBIA UNIVERSITY	NAS 6-2519	Talwani, M.	32	2805
WFC	Holland, A. C	DREXEL UNIVERSITY	NSG 6007	Brandy, A. R	31	3156
WFC	Milliner, J. B.	ESTRN SHORE CMTY COL	NAS 6-2707	Unavailable	99	3524
WFC	Hoge, H. F	HAMPTON INSTITUTE	NGR 47-020-006	Trehan, A. K	19	3529
WFC	Stanley, H. R	JOHNS HOPKINS UNIV	NAS 6-2706	Phillips, O. M	33	2214
WFC	West, W. W	NEW MEX ST U-LAS CR	NAS 6-2686	Gammill, B. G.	46	2746
WFC	Walsh, E. J	NEW MEX ST U-LAS CR	NAS 6-2795	Guard, K.	32	2747
WFC	Stanley, H. R	NO CAROLINA STATE U	NAS 6-2617	Long, S. R.	33	2989
WFC	Stanley, H. R.	OHIO STATE UNIV	NAS 6-2484	Rapp, R. H.	32	3053
WFC	Duke, J. R	PENN STATE U-UNIV PK	NAS 6-2602	Hale, L. C.	19	3180
WFC	Duke, J. R	PENN STATE U-UNIV PK	NAS 6-2726	Olivero, J.	31	3181
WFC	Schmidlin, F. J.	PENN STATE U-UNIV PK	NAS 6-2818	Clark, J. H.	31	3182
WFC	Schmidlin, F. J.	PENN STATE U-UNIV PK	NAS 6-2826	Hale, L. C	31	3183
WFC	Ballance, C. W., Jr	PENN STATE U-UNIV PK	NGL 39-009-032	Kendall, B. R.	13	3188
WFC	Ballance, C. W., Jr	PENN STATE U-UNIV PK	NSG 6004	Hale, L. C	19	3210
WFC	Maurer, H. F	PURDUE UNIVERSITY	NAS 6-2695	Phillips, T. L	39	2058

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
WFC	Maurer, H. E.	PURDUE UNIVERSITY	NAS 6-2816	Anuta, P. E.	99	2059
WFC	Ballance, C. W., Jr.	RICE UNIVERSITY	NAS 6-1667	Anderson, H. R., Jr.	11	3341
WFC	Ballance, C. W., Jr.	UNIV ALASKA-FAIRBNKS	NSG 6014	Davis, T. N.	19	1071
WFC	Stanley, H. R.	UNIV CALIF-L ANGELES	NAS 6-2463	Kaula, W. M.	33	1466
WFC	Stanley, H. R.	UNIV CALIF-L ANGELES	NAS 6-2703	Mintz, Y.	33	1467
WFC	Stanley, R.	UNIV CALIF-SAN DIEGO	NAS 6-2506	Hendershott, M.	11	1524
WFC	Holland, A. C.	UNIV DC-HARVARD GA	NSG 6003	Curtis, W. C	19	1819
WFC	Duke, J. R.	UNIV OF DAYTON	NAS 6-2456	Luers, J. K.	31	3089
WFC	Huang, N. E.	UNIV OF DELAWARE	NAS 6-2820	Wu, J.	33	1750
WFC	Parker, L. C.	UNIV OF DELAWARE	NSG 6015	Robinson, D. M.	45	1758
WFC	Ballance, C. W., Jr.	UNIV HOUSTON-HOUSTON	NSG 6008	Sheldon, W. R.	19	3417
WFC	Ballance, C. W., Jr.	UNIV ILLINOIS-URBANA	NGR 14-005-181	Bowhill, S. A.	19	2027
WFC	Alfonsi, P. J.	UNIV MARYLAND-COL PK	NSG 6010	Harmon, D. M.	72	2296
WFC	Floyd, J. C.	UNIV MD-EASTRN SHORE	NAS 6-2595	Unavailable	99	2307
WFC	Raine, A. W.	UNIV MD-EASTRN SHORE	NGR 21-119-002	Nagaraja, N	41	2309
WFC	Trafford, G. H.	UNIV MD-EASTRN SHORE	NGR 21-119-003	Singh, G.	13	2310
WFC	Oberholtzer, J. D.	UNIV MD-EASTRN SHORE	NSG 6006	Wutoh, J. G.	99	2311
WFC	Parsons, C. L.	UNIV MD-EASTRN SHORE	NSG 6016	Smith, J. C.	31	2312
WFC	Trafford, G. H.	UNIV MD-EASTRN SHORE	NSG 6017	Lynk, W. L.	59	2313
WFC	Rossi, L. C.	UNIV MICH-ANN ARBOR	NAS 6-2794	Horvath, J. J.	31	2525
WFC	Ballance, C. W., Jr.	U MINN-MNPLS-ST PAUL	NSG 6005	Arnoldy, R. J	19	2598
WFC	Ballance, C. W., Jr.	U MINN-MNPLS-ST PAUL	NSG 6009	Nier, A. O.	19	2599
WFC	Ballance, C. W., Jr.	UNIV NEW HAMP-DURHAM	NSG 6013	Arnoldy, R. L.	31	2694
WFC	Ballance, C. W., Jr.	UNIV OF PITTSBURGH	NSG 6011	Zipf, E. C., Jr.	19	3237
WFC	Stanley, H. R.	UNIV TEXAS-AUSTIN	NAS 6-2454	Tapley, B. D.	32	3426
WFC	Ballance, C. W., Jr.	UNIV TEXAS-DALLAS	NSG 6012	Christensen, A. B.	19	3477
WFC	Duke, J. R.	UNIV OF UTAH	NAS 6-2498	Kao, S. K.	31	3498
WFC	Duke, J. R.	UNIV OF UTAH	NAS 6-2627	Stewart, A. I.	31	3499
WFC	Scott, J. H.	VIRGINIA POLY INST	NAS 6-2388	Pettry, D. E.	39	3619
WFC	Carr, R. F.	VIRGINIA POLY INST	NGL 47-004-067	Tieleman, H. W.	31	3622
HQ-AD	Wright, M. D.	GEORGE WASHINGTON U	NSG 7145	Logsdon, J. M.	75	1793
HQ-AD	Wright, M. D.	UNIV HOUSTON-HOUSTON	NASW 2691	Unavailable	73	3409
HQ-BX	Weir, J. F	UNIV OF HAWAII-MANOA	NASW 2742	Jefferies, J. T.	11	1958
HQ-BX	Weir, J. F	UNIV OF HAWAII-MANOA	NASW 2801	Jefferies, J. T.	11	1959
HQ-EC	Freibaum, J.	MASS INST OF TECH	NASW 2787	Unavailable	45	2393
HQ-EF	Ernst, H. M.	CITY COLLEGE OF N Y	NSG 7144	Schilling, D. L.	49	2790
HQ-ES	Murphy, J. P	OHIO STATE UNIV	NGR 36-008-204	Mueller, I. I.	32	3059
HQ-ES	Murphy, J. P.	UNIV CALIF-L ANGELES	NSG 7002	Kaula, W. M.	32	1504
HQ-ES	Flinn, E. A.	UNIV TEXAS-AUSTIN	NSG 7159	Dorman, J. H.	19	3454
HQ-FE	Rich, W. B	CAL STATE U-CHICO	NASW 2835	Unavailable	99	1211
HQ-FI	Tuttle, F. B.	UNIV OF UTAH	NASW 2648	Ridd, M. K.	39	3500
HQ-K	Gray, E. Z.	NEW YORK UNIVERSITY	NSG 7169	Morgenstern, O.	72	2890
HQ-KT	Holley, H. L	INDIANA U-BLOOMINGTN	NASW 2714	Shriner, H.	99	2047
HQ-KT	Bivins, R. G	INDIANA U-BLOOMINGTN	NASW 2845	Shriner, R. D	99	2048
HQ-KT	Bivins, R. G	SOUTHEASTN OKLA ST U	NASW 2881	Gold, C. H.	99	3110
HQ-KT	Bivins, R. G.	SOUTHEASTN OKLA ST U	NASW 3007	Gold, C. H	99	3111
HQ-KT	Dolby, W.	ST UNIV SYSTM OF FLA	NASW 3060	Unavailable	99	1850
HQ-KT	Bivins, R. G	UNIV OF CONNECTICUT	NASW 3059	Wilde, D. U.	99	1736
HQ-KT	Ault, L. A	UNIV OF DENVER	NASW 2766	Freeman, J. E.	99	1718
HQ-KT	Ault, L. A.	UNIV OF DENVER	NASW 2892	Johnson, F. D.	99	1719
HQ-KT	Hargrave, C	UNIV OF DENVER	NASW 2992	Unavailable	22	1720
HQ-KT	Ault, L. A.	UNIV OF DENVER	NASW 3021	Unavailable	99	1721
HQ-KT	Dolby, W. R	UNIV OF FLORIDA	W-14206	Unavailable	99	1873
HQ-KT	Harrison, J. O.	UNIV OF GEORGIA	NASW 2948	Unavailable	99	1954
HQ-KT	Dolby, W.	UNIV OF KENTUCKY	NASW 3039	Unavailable	99	2162
HQ-KT	Bivins, R. G.	UNIV OF NEW MEXICO	NASW 2805	Unavailable	99	2763
HQ-KT	Bivins, R. G	UNIV OF NEW MEXICO	NASW 2936	Unavailable	99	2764
HQ-KT	Bivins, R. G.	UNIV OF PITTSBURGH	NASW 2838	Unavailable	99	3223

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-KT	Bivins, R. G.	UNIV OF PITTSBURGH	NASW 3042	Unavailable	99	3224
HQ-KT	Holley, H. L.	UNIV OF SOUTHERN CAL	NASW 2771	Unavailable	99	1620
HQ-KT	Gilbert, R.	UNIV OF SOUTHERN CAL	NASW 3009	Unavailable	99	1621
HQ-KT	Bivins, R. G.	UNIV OF SOUTHERN CAL	NASW 3031	Munushan, J.	99	1622
HQ-KT	OHandley, D. A.	UNIV WISC-MADISON	NASW 2819	Huston, N.	59	3710
HQ-P	Carter, C. H.	AUBURN UNIV-AUBURN	NGT 01-003-044	Vachon, R. I	49	1026
HQ-P	Pohly, J. G.	BENNETT COLLEGE-NC	NGT 34-017-001	Sayles, J. N.	99	2976
HQ-P	Pohly, J. G.	BOWIE STATE COLLEGE	NGT 21-027-012	Kirksey, C. H	99	2204
HQ-P	Pohly, J. G.	CAL STATE U-L ANGLES	NSG 7229	Manly, R.	46	1219
HQ-P	Carter, C. H.	CASE WESTERN RESERVE	NGT 36-027-011	Prahl, J. M	49	3018
HQ-P	Vitale, J. A.	CORNELL UNIVERSITY	NGL 33-010-171	Liang, T	39	2842
HQ-P	Pohly, J. G.	FLORIDA A&M UNIV	NSG 901	Jones H J	13	1852
HQ-P	Pohly, J. G.	GOUCHER COLLEGE	NGT 21-123-001	Billet, J.	99	2207
HQ-P	Pohly, J. G	GRAMBLING STATE UNIV	NGR 19-011-012	Sabu, D. D.	43	2178
HQ-P	Carter, C. H.	HARVARD UNIVERSITY	NSG 7176	Field, G. B.	11	2356
HQ-P	Pohly, J. G.	HOWARD UNIVERSITY	NGL 09-011-04?	Ferguson, G. A.	39	1803
HQ-P	Pohly, J. G.	HOWARD UNIVERSITY	NGT 09-011-058	Cox, E. L.	49	1805
HQ-P	Pohly, J. G.	LINCOLN UNIV-PA	NGT 39-108-750	Williams, W Jr.	49	1174
HQ-P	Vitale, J. A.	LA ST U&A&M COL-BRGE	NGL 19-001-105	Whitehurst, C. A	39	2183
HQ-P	Carter, C. H.	MASS INST OF TECH	NGL 22-009-638	McCarthy, J. ' Jr.	99	2404
HQ-P	Vitale, J. A.	MASS INST OF TECH	NSG 7331	Gatos, H. C.	31	2489
HQ-P	Vitale, J. A.	MICHIGAN STATE UNIV	NGL 23-004-08?	Boylan, M. G.	29	2505
HQ-P	Vitale, J. A.	MISSISSIPPI STATE U	NGL 25-001-054	Miller, W. F.	09	2620
HQ-P	Pohly, J. G.	MOREHOUSE COLLEGE	NGT 11-008-004	Hall, J.	99	1938
HQ-P	Pohly, J. G	MORGAN STATE UNIV	NGT 21-025-006	Proctor, N. K.	19	2230
HQ-P	Pohly, J. G.	NM HIGHLANDS UNIV	NGT 32-010-001	Zenick, H.	99	2734
HQ-P	Pohly, J. G.	NEW MEX ST U-LAS CR	NGT 32-003-750	Zimmerman, R. M.	49	2757
HQ-P	Pohly, J. G.	NO CAR A&T STATE U	NGT 34-012-750	Chandra, S.	49	2983
HQ-P	Morris, J. D.	NORTHWESTERN UNIV	NGR 14-007-136	Radnor, M	99	1983
HQ-P	Carter, C. H.	OHIO STATE UNIV	NGT 36-008-007	Keller, M. D	52	3060
HQ-P	Vitale, J. A	OLD DOMINION UNIV	NGL 47-003-067	Kindle, E. C.	31	3536
HQ-P	Carter, C. H.	OLD DOMINION UNIV	NGT 47-003-028	Goglia, G. L.	49	3538
HQ-P	Carter, C. H.	OLD DOMINION UNIV	NGT 47-003-029	Goglia, G. L.	49	3539
HQ-P	Vitale, J. A.	OREGON STATE UNIV	NGL 38-002-053	Schrumpf, B J.	39	3127
HQ-P	Pohly, J. G.	PAN AMERICAN UNIV	NSG 7298	Glaser, F. M.	31	3333
HQ-P	Pohly, J. G.	PRAIRIE VIEW A&M U	NGT 44-033-750	Greaux, A. E.	49	3336
HQ-P	Vitale, J. A.	PURDUE UNIVERSITY	NGL 15-005-186	Weismiller, R. A.	39	2064
HQ-P	Vitale, J. A.	SO DAKOTA STATE UNIV	NGL 42-003-007	Myers, V. I.	39	3263
HQ-P	Pohly, J. G.	SO UNIV-BATON ROUGE	NGT 19-005-750	Burrell, M Q.	49	2188
HQ-P	Pohly, J. G.	SPELMAN COLLEGE	NGT 11-013-001	Falconer, E.	99	1951
HQ-P	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-409	Adams, ' L.	49	1332
HQ-P	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-412	Bershader, D	49	1333
HQ-P	Carter, C. H.	STANFORD UNIVERSITY	NGT 05-020-777	Beard, R. R	99	1334
HQ-P	Pohly, J. G.	TENNESSEE STATE UNIV	NGT 43-014-750	Malkani, M. J.	49	3270
HQ-P	Pohly, J. G.	TEXAS A&I UNIVERSITY	NGT 44-073-750	Franke, E. A	49	3360
HQ-P	Vitale, J. A.	TEXAS A&M UNIVERSITY	NGL 44-001-001	Rouse, J. W., Jr	39	3382
HQ-P	Pohly, J. G	TUSKEGEE INSTITUTE	NGT 01-005-750	Dybczak, Z. W.	49	1033
HQ-P	Carter, C. H.	UNIV ALA-HUNTSVILLE	NGT 01-008-021	Head, R. R	49	1057
HQ-P	Carter, C. H.	UNIV ALA-TUSCALOOSA	NGT 01-002-080	Barfield, B. F	49	1066
HQ-P	Carter, C. H.	UNIV ALA-TUSCALOOSA	NGT 01-002-095	Lueg, R. E.	49	1067
HQ-P	Vitale, J. A.	UNIV ALASKA-FAIRBNKS	NGL 02-001-092	Miller, J M	39	1069
HQ-P	Vitale, J. A.	UNIV OF ARIZONA	NGL 03-002-313	Johnson J. D.	39	1113
HQ-P	Vitale, J. A.	UNIV OF ARIZONA	NSG 7333	Bier, M	59	1143
HQ-P	Vitale, J. A.	UNIV CALIF-BERKELEY	NGL 05-003-404	Colewell, R N.	39	1400
HQ-P	Carter, C. H.	UNIV CALIF-BERKELEY	NGL 05-003-407	Anderson, K A.	99	1403
HQ-P	Vitale, J. A.	UNIV CALIF-BERKELEY	NSG 7220	Colwell, R N	39	1439
HQ-P	Carter, C. H.	UNIV OF CHICAGO	NGL 14-001-258	Simpson, J A.	99	2002
HQ-P	Vitale, J. A.	UNIV COLORADO-BOLDR	NGL 06-003-200	Ives, J. D.	39	1683

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-P	Vitale, J. A.	UNIV OF FLORIDA	NSG 7236	Brooks, H. K.	39	1870
HQ-P	Carter, C. H.	UNIV HOUSTON-HOUSTON	NGT 44-005-114	Huang, C. J.	49	3414
HQ-P	Carter, C. H.	UNIV HOUSTON-HOUSTON	NGT 44-005-115	Huang, C. J.	49	3415
HQ-P	Vitale, J. A.	UNIV OF KANSAS	NGL 17-004-024	Barr, B. G.	39	2129
HQ-P	Carter, C. H.	UNIV MARYLAND-COL PK	NGT 21-002-254	Emad, F. P.	49	2271
HQ-P	Vitale, J. A.	U MINN-MNPLS-ST PAUL	NGL 24-005-263	Shepherd, W. G.	39	2588
HQ-P	Carter, C. H.	U MINN-MNPLS-ST PAUL	NGT 24-005-078	Anderson, G. W.	99	2592
HQ-P	Vitale, J. A.	UNIV NEBRASKA-LINCLN	NGL 28-004-020	Carlson, M. P.	39	2673
HQ-P	Pohly, J. G.	UNIV OF NEW MEXICO	NGT 32-004-750	Theye, L. A.	49	2774
HQ-P	Pohly, J. G.	UNIV OF NEW MEXICO	NGT 32-004-770	Etter, D. M.	49	2775
HQ-P	Pohly, J. G.	UNIV OKLAHOMA-NORMAN	NGT 37-003-760	Thomas, G.	49	3117
HQ-P	Carter, C. H.	UNIV TEXAS-DALLAS	NGL 44-004-130	Johnson, F. S.	99	3471
HQ-P	Pohly, J. G.	UNIV TEXAS-EL PASO	NGT 44-085-750	Guard, R. W.	49	3479
HQ-P	Vitale, J. A.	UNIV OF UTAH	NSG 7226	Ridd, M. K.	39	3505
HQ-P	Vitale, J. A.	UNIV WISC-MADISON	NGL 50-002-127	Clapp, J. L.	39	3714
HQ-MT	Roberts, J. L.	MASS INST OF TECH	NGR 22-009-735	Chapman, P. K.	13	2423
HQ-MT	Cramblitt, D.	PENN STATE U-UNIV PK	NSG 7078	Kaplan, M.	42	3211
HQ-MV	Goozh, P. E.	UNIV OF ROME	NASW 1761	Unavailable	49	3752
HQ-QG	Arnoldi, L. B.	BOSTON UNIVERSITY	NSG 7063	Hershberg, P. I.	52	2320
HQ-RE	Alsberg, H.	MASS INST OF TECH	NGL 22-009-013	Kennedy, R. S.	45	2395
HQ-RE	Gevarter, W. B.	MASS INST OF TECH	NSG 7[illegible]27	Weinstein, M.	49	2484
HQ-RE	Gevarter, W. B.	RENSSELAER POLY-NY	NSG 7184	Shen, C. N.	19	2918
HQ-RE	Gevarter, W. B.	RENSSELAER POLY-NY	NSG 7369	Yerazunis, S. W.	49	2920
HQ-RE	Pontious, C. E.	STANFORD UNIVERSITY	NASW 2916	McCarthy, J.	45	1287
HQ-RE	Catoe, C. E.	STANFORD UNIVERSITY	NGL 05-020-103	Harris, S. E.	45	1306
HQ-RE	Pontious, C. E.	UNIV MARYLAND-COL PK	NGR 21-002-270	Minker, J	21	2261
HQ-RP	Lazar, J.	PRINCETON UNIVERSITY	NGL 31-001-005	Jahn, R. G.	42	2707
HQ-RR	Randolph, L. P.	CALIF INST OF TECH	NSG 7275	Vaughan, R.	13	1204
HQ-RR	Thom, K.	ILL INST OF TECH	NSG 7039	Weinstein, H.	13	1980
HQ-RR	Thom, K.	PRINCETON UNIVERSITY	NASW 2975	Tahn, R.	13	2706
HQ-RR	Randolph, L. P.	STANFORD UNIVERSITY	NGL 05-020-242	Little, W. A.	13	1308
HQ-RR	Thom, K.	STANFORD UNIVERSITY	NSG 7110	Pantell, R. H.	13	1371
HQ-RR	Thom, K.	UNIV OF FLORIDA	NGL 10-005-089	Schneider, R. T.	13	1858
HQ-RR	Thom, K.	UNIV OF FLORIDA	NSG 7299	Schneider, R. T.	13	1871
HQ-RR	Randolph, L. P.	UNIV ILLINOIS-CHICGO	NSG 7247	Barcilon, V.	21	2020
HQ-RR	Randolph, L. P.	UNIV OF IOWA	NSG 7257	Valanis, K. C.	47	2114
HQ-RR	Lundholm, J. G., Jr.	UNIV MARYLAND-COL PK	NSG 7196	Weber, J.	13	2298
HQ-RR	Randolph, L. P.	UNIV MARYLAND-COL PK	NSG 7253	Reiger, C. J.	22	2300
HQ-RR	Lundholm, J. G., Jr.	U MINN-MNPLS-ST PAUL	NSG 7296	Scriven, L. E.	13	2605
HQ-RR	Randolph, L. P.	UNIV OF UTAH	NASW 2967	Vali, V.	13	3501
HQ-RR	Thom, K.	UNIV OF WASHINGTON	NGL 48-002-044	Hertzberg, A	13	3666
HQ-RW	Salkind, M. J.	RENSSELAER POLY-NY	NGL 33-018-003	Wiberly, S. E.	47	2909
HQ-RW	Gangler, J. J.	UNIV OF WASHINGTON	NGL 48-002-004	Mueller, J. I.	47	3663
HQ-RX	Rollins, R. H.	UNIV OF VIRGINIA	NSG 7266	Kulkthau, A. R.	72	3609
HQ-RX	Rollins, R. H.	W VA COL GRAD STUDY	NSG 7089	Cobb, W. E.	75	3690
HQ-SB	Young, R. S.	AMHERST COLLEGE	NSG 7325	Leadbetter, E. R.	51	2314
HQ-SB	Young, R. S.	ARIZONA STATE UNIV	NSG 7255	Cronin, J. R.	32	1083
HQ-SB	Larson, C. A.	BOSTON UNIVERSITY	NGR 22-004-018	Fulton, G. P.	59	2316
HQ-SB	Young, R. S.	BOSTON UNIVERSITY	NGR 22-004-025	Margulis, L.	32	2317
HQ-SB	Young, R. S.	CALIF INST OF TECH	NGR 05-002-121	Horowitz, N. H.	51	1183
HQ-SB	Young, R. S.	CAL STATE U-L ANGLES	NSG 7261	Bragin, J.	12	1220
HQ-SB	Halstead, T. W.	CLARKSON COL OF TECH	NSG 7170	McNulty, P. J.	59	2794
HQ-SB	Jones, W. L.	COLLEGE OF WM & MARY	NSG 7073	Aceto, H., Jr.	59	3523
HQ-SB	Young, R. S.	CORNELL UNIVERSITY	NGR 33-010-101	Sagan, C. E.	12	2845
HQ-SB	Young, R. S.	CORNELL UNIVERSITY	NSG 7235	MacDonald, R. E.	51	2867
HQ-SB	Young, R. S.	FLORIDA STATE UNIV	NSG 7337	Friedmann, E. I.	51	1844
HQ-SB	Young, R. S.	GEORGE WASHINGTON U	NASW 2768	Unavailable	59	1769
HQ-SB	Young, R. S.	GEORGE WASHINGTON U	NASW 2890	Unavailable	75	1770

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SB	Halstead, T. W.	GEORGE WASHINGTON U	NASW 3029	Head, M. C.	75	1771
HQ-SB	Young, R. S.	GEORGIA INST OF TECH	NSG 7069	Hubbard, J. S.	51	1934
HQ-SB	Young, R. S.	HARDIN-SIMMONS UNIV	NGR 44-095-001	Foster, T. L.	51	3327
HQ-SB	Young, R. S.	HARVARD UNIVERSITY	NGL 22-007-069	Barghoorn, E. S.	32	2336
HQ-SB	Young, R. S.	INDIANA U-BLOOMINGTN	NGR 15-003-118	Hayes, J. M.	32	2052
HQ-SB	Young, R. S.	MASS INST OF TECH	NGR 22-009-005	Biemann, K.	51	2406
HQ-SB	Young, R. S.	MASS INST OF TECH	NGR 22-009-277	Rich, A.	12	2408
HQ-SB	Halstead, T. W.	OHIO UNIVERSITY	NSG 7352	Jaffe, M. J.	51	3072
HQ-SB	Young, R. S.	PENN STATE U-UNIV PK	NGR 39-009-180	Casida, L. E., Jr.	51	3192
HQ-SB	Young, R. S.	POLY INST OF NY	NGR 33-006-070	Eirich, F. R.	12	2894
HQ-SB	Halstead, T. W.	PRINCETON UNIVERSITY	NSG 7280	Jacobs, W. P.	51	2726
HQ-SB	Halstead, T. W.	PURDUE UNIVERSITY	NSG 7278	Mitchell, C. A	51	2082
HQ-SB	Young, R. S.	RENSSELAER POLY-NY	NGR 33-018-148	Ferris, J. P.	12	2912
HQ-SB	Young, R. S.	RENSSELAER POLY-NY	NSG 7065	Wedler, F. C.	51	2917
HQ-SB	Young, R. S.	RENSSELAER POLY-NY	NSG 7345	Pope, D. H.	51	2919
HQ-SB	Young, R. S.	SAN FRAN STATE UNIV	NSG 7234	Kenyon, D. H.	12	1236
HQ-SB	Young, R. S.	SO ILL UNIV-CARBONDL	NGR 14-008-026	Yopp, J. H.	51	1990
HQ-SB	Young, R. S.	STANFORD UNIVERSITY	NGL 05-020-582	Bonner, W. A.	59	1314
HQ-SB	Young, R. S.	STANFORD UNIVERSITY	NGR 05-020-004	Lederberg, J.	51	1316
HQ-SB	Young, R. S.	STATE U NY-STONY BRK	NGR 33-015-169	Owen, T.	12	2948
HQ-SB	Halstead, T. W.	STATE U NY-STONY BRK	NSG 7270	Krikorian, A. D.	51	2959
HQ-SB	Young, R. S.	TEXAS A&M UNIVERSITY	NSG 7037	Fendler, J. H.	12	3393
HQ-SB	Young, R. S.	UNIV ALA-BIRMINGHAM	NGR 01-010-001	Lacey, J. C., Jr.	12	1038
HQ-SB	Young, R. S.	UNIV OF ARIZONA	NGR 03-002-171	Nagy, B.	32	1115
HQ-SB	Young, R. S.	UNIV CALIF-BERKELEY	NGL 05-003-003	Calvin, M.	32	1396
HQ-SB	Young, R. S.	UNIV CALIF-BERKELEY	NGR 05-003-460	Jukes, J. H.	12	1409
HQ-SB	Halstead, T. W.	UNIV CALIF-BERKELEY	NSG 7262	Pace, N.	51	1440
HQ-SB	Halstead, T. W.	UNIV CALIF-BERKELEY	NSG 7336	Pace, N.	51	1442
HQ-SB	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-221	Kaplan, I. R.	32	1480
HQ-SB	Young, R. S.	UNIV CALIF-L ANGELES	NGR 05-007-407	Schopf, J. W.	32	1488
HQ-SB	Young, R. S.	UNIV CALIF-SAN DIEGO	NGR 05-009-213	Yayanos, A. A.	51	1545
HQ-SB	Young, R. S.	UNIV CALIF-SAN DIEGO	NGR 05-009-218	Miller, S. L.	12	1546
HQ-SB	Young, R. S.	UNIV CALIF-SAN FRAN	NSG 7151	Stoeckenius, W.	51	1573
HQ-SB	Larson, C. A.	UNIV OF CHICAGO	NSG 7303	Moran, H. F.	51	2016
HQ-SB	Young, R. S.	UNIV OF HAWAII-MANOA	NGL 12-001-042	Siegel, S. M.	51	1961
HQ-SB	Young, R. S.	UNIV OF HAWAII-MANOA	NGR 12-001-109	Folsome, C. E.	12	1964
HQ-SB	Young, R. S.	UNIV HOUSTON-HOUSTON	NGR 44-005-002	Oro, J.	32	3410
HQ-SB	Young, R. S.	UNIV HOUSTON-HOUSTON	NGR 44-005-091	Becker, R. S.	12	3411
HQ-SB	Halstead, T. W.	UNIV HOUSTON-HOUSTON	NSG 7300	Hendrix, D. L.	51	3420
HQ-SB	Halstead, T. W.	UNIV HOUSTON-HOUSTON	NSG 9042	Coules, J. R.	51	3421
HQ-SB	Young, R. S.	UNIV ILLINOIS-URBANA	NSG 7044	Woese, C. R.	12	2041
HQ-SB	Young, R. S.	UNIV MARYLAND-COL PK	NGR 21-002-317	Ponnamperuma, C. A.	12	2264
HQ-SB	Young, R. S.	UNIV OF MIAMI	NGR 10-007-008	Fox, S. W.	12	1880
HQ-SB	Geib, D. S.	UNIV MICH-ANN ARBOR	NSG 7308	Kuhn, W. R.	31	2565
HQ-SB	Young, R. S.	U MINN-MNPLS-ST PAUL	NGL 24-005-160	Straub, C. P.	51	2586
HQ-SB	Halstead, T. W.	UNIV OF PENNSYLVANIA	NGR 39-010-149	Brown, A. H.	51	3219
HQ-SB	Young, R. S.	UNIV OF ROCHESTER	NGR 33-019-002	Hempfling, W. P.	51	2969
HQ-SB	Young, R. S.	UNIV OF ROCHESTER	NSG 7366	Vishniac, H. S.	51	2972
HQ-SB	Geib, D. S.	UNIV SO CAROLINA-COL	NSG 7096	Rohlfing, D. L.	51	3258
HQ-SB	Young, R. S.	UTAH STATE UNIV	NSG 7038	Smith, G. G.	32	3509
HQ-SB	Saunders, J. F.	VIRGINIA COMNWLTH U	NGL 47-002-005	Ham, W. T.	51	3611
HQ-SB	Young, R. S.	WORCESTER POLY INST	NSG 7154	Daniells, J. F.	51	2503
HQ-SB	Young, R. S.	YALE UNIVERSITY	NGR 07-004-009	Morowitz, H. J.	51	1742
HQ-SB	Halstead, T. W.	YALE UNIVERSITY	NSG 7290	Galston, A. W.	51	1747
HQ-SA	Roman, N. G.	BOWLING GRN STATE U	NSG 7022	Ptak, R. L.	11	3007
HQ-SA	Rosendahl, J. D.	CALIF INST OF TECH	NGL 05-002-134	Kasten, R.	11	1175
HQ-SA	Boggess, N. W.	CALIF INST OF TECH	NGL 05-002-207	Neugebauer, G.	11	1179
HQ-SA	Sofia, S.	CALIF INST OF TECH	NGR 05-002-160	Vogt, R. E.	11	1184

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SA	Boggess, N. W.	CALIF INST OF TECH	NGR 05-002-256	Thorne, K. S.	11	1185
HQ-SA	Roman, N. G.	CALIF INST OF TECH	NSG 7195	Christysackmann, I. J.	11	1202
HQ-SA	Boggess, N. W.	COLUMBIA UNIVERSITY	NSG 7105	Zare, R.	11	2827
HQ-SA	Sofia, S.	COLUMBIA UNIVERSITY	NSG 7248	Weisskopf, M. C.	11	2830
HQ-SA	Opp, A. G.	CORNELL UNIVERSITY	NGR 33-010-145	Greisen, K. I.	11	2848
HQ-SA	Boggess, N. W.	CORNELL UNIVERSITY	NGR 33-010-172	Harwit, M. O.	11	2851
HQ-SA	Boggess, N. W	CORNELL UNIVERSITY	NSG 7324	Houck, J. R.	11	2870
HQ-SA	Rosendhal, J. D.	HARVARD UNIVERSITY	NASW 2938	Noyes, R. W.	49	2333
HQ-SA	Boggess, N. W.	HARVARD UNIVERSITY	NGR 22-007-270	Fazio, G. G.	11	2343
HQ-SA	Opp, A. G.	HARVARD UNIVERSITY	NGR 22-007-272	Cameron, A. G.	11	2344
HQ-SA	Rosendahl, J. D.	HARVARD UNIVERSITY	NSG 7304	Parkinson, W. H.	31	2358
HQ-SA	Rosendhal, J. D.	INDIANA U-BLOOMINGTN	NGL 15-003-002	Johnson, H. R.	11	2050
HQ-SA	Boggess, N W	MASS INST OF TECH	NGR 22-009-526	Weiss, R.	11	2412
HQ-SA	Roman, N. G	MASS INST OF TECH	NSG 7091	Weiss, R	11	2481
HQ-SA	Boggess, N. W.	MASS INST OF TECH	NSG 7186	Kleinmann, S.	11	2483
HQ-SA	Boggess, N W	MASS INST OF TECH	NSG 7328	Weiss, R.	11	2487
HQ-SA	Sofia, S	MASS INST OF TECH	NSG 7339	Lewin, W. G.	11	2491
HQ-SA	Roman, N. G.	MONTANA STATE UNIV	NGR 27-001-040	Nordtvedt, K., Jr.	11	2668
HQ-SA	Rosendahl, J. D.	NEW YORK UNIVERSITY	NGR 33-016-196	Glassgold, A. E.	13	2879
HQ-SA	Lazarus, A. J.	NEW YORK UNIVERSITY	NSG 7116	Korff, S. A.	11	2889
HQ-SA	Roman, N. G.	NORTHWESTERN UNIV	NGL 14-007-041	Huang, S. S.	11	1981
HQ-SA	Roman, N. G.	PRINCETON UNIVERSITY	NGL 31-001-007	Spitzer, L., Jr.	11	2708
HQ-SA	Boggess, N. W.	PRINCETON UNIVERSITY	NGR 31-001-202	Dicke, R. H.	13	2712
HQ-SA	Roman, N. G.	PRINCETON UNIVERSITY	NSG 7256	Bahcall, N. A.	11	2725
HQ-SA	Boggess, N. W.	PRINCETON UNIVERSITY	NSG 7302	Wilkinson, D.	11	2728
HQ-SA	Rosendahl, J. D.	PRINCETON UNIVERSITY	NSG 7379	Schwarzschild, M.	11	2729
HQ-SA	Roman, N. G.	PRINCETON UNIVERSITY	NSR 31-001-901	Lowrance, J. L.	11	2730
HQ-SA	Rosendhal, J. D.	PURDUE UNIVERSITY	NSG 7167	Moffett, T. J.	11	2081
HQ-SA	Sofia, S.	RICE UNIVERSITY	NSG 7015	Clayton, D. D.	11	3351
HQ-SA	Sofia, S.	STANFORD UNIVERSITY	NGR 05-020-452	Hofstadter, R.	11	1321
HQ-SA	Sofia, S.	STANFORD UNIVERSITY	NGR 05-020-668	Sturrock, P. A.	11	1328
HQ-SA	Roman, N. G.	STANFORD UNIVERSITY	NSG 7204	Will, C. M.	11	1373
HQ-SA	Roman, N. G.	STATE UNIV NY-ALBANY	NSG 7241	Weinberg, J. L.	11	2931
HQ-SA	Roman, N. G.	ST U NY COL-GENESEO	NGR 33-219-002	Meisel, D. D.	11	2964
HQ-SA	Opp, A. G.	STATE U NY-STONY BRK	NGR 33-015-180	Forman, M. A.	11	2949
HQ-SA	Roman, N. G.	UNIV OF ARIZONA	NGL 03-002-017	Bashkin, S.	11	1107
HQ-SA	Roman, N. G.	UNIV OF ARIZONA	NGL 03-002-032	Tifft, W. G.	11	1109
HQ-SA	Boggess, N W	UNIV OF ARIZONA	NGR 03-002-269	Low, F. J.	11	1117
HQ-SA	Boggess, N. W.	UNIV OF ARIZONA	NGR 03-002-371	Hoffman, W. F.	11	1120
HQ-SA	Opp, A. G.	UNIV OF ARIZONA	NSG 7101	Jokippi, J.	11	1133
HQ-SA	Roman, N. G	UNIV OF ARIZONA	NSG 7142	Tifft, W. G.	45	1135
HQ-SA	Roman, N. G.	UNIV OF ARIZONA	NSG 7358	Gehrels, A. M.	11	1145
HQ-SA	Boggess, N. W.	UNIV OF ARIZONA	NSG 7368	Craine, E. R.	11	1146
HQ-SA	Rosendhal, J. D.	UNIV ARKANSAS-FAYETV	NSG 7106	Hughes, R. H.	11	1153
HQ-SA	Boggess, N. W.	UNIV CALIF-BERKELEY	NGL 05-003-272	Townes, C. H.	11	1398
HQ-SA	Sofia, S.	UNIV CALIF-BERKELEY	NGR 05-003-376	Price, P. B.	11	1405
HQ-SA	Sofia, S.	UNIV CALIF-BERKELEY	NGR 05-003-513	Heckman, H. H.	11	1412
HQ-SA	Sofia, S.	UNIV CALIF-BERKELEY	NGR 05-003-553	Alvarez, L. W	11	1413
HQ-SA	Roman, N. G.	UNIV CALIF-BERKELEY	NGR 05-003-578	Silk, J. I.	11	1415
HQ-SA	Rosendhal, J. D.	UNIV CALIF-BERKELEY	NSG 7139	Bowyer, C. S.	11	1436
HQ-SA	Boggess, N W.	UNIV CALIF-BERKELEY	NSG 7205	Richards, P. L.	11	1438
HQ-SA	Sofia, S.	UNIV CALIF-L ANGELES	NSG 7341	Kennel, C F	11	1515
HQ-SA	Sofia, S.	UNIV CALIF-RIVERSIDE	NGR 05-008-022	White, R. S	11	1517
HQ-SA	Aucremanne, M. J.	UNIV CALIF-SAN DIEGO	NASW 2996	McIlwain, C. E.	31	1528
HQ-SA	Sofia, S.	UNIV CALIF-SAN DIEGO	NGL 05-005-003	Peterson, L. E.	13	1529
HQ-SA	Rosendhal, J. D.	UNIV CALIF-SAN DIEGO	NGL 05-005-004	Gould, R. J	11	1530
HQ-SA	Roman, N. G.	UNIV CALIF-SAN DIEGO	NGR 05-009-188	McIlwain, C E.	11	1544
HQ-SA	Sofia, S.	UNIV CALIF-SAN DIEGO	NSG 7294	Peterson, L. E.	11	1564

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NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SA	Boggess, N. W.	UNIV CALIF-S CRUZ	NGR 05-061-015	Rank, D. M.	11	1585
HQ-SA	Sofia, S.	UNIV OF CHICAGO	NGL 14-001-001	Parker, E. N.	11	1995
HQ-SA	Sofia, S.	UNIV OF CHICAGO	NGL 14-001-005	Meyer, P.	11	1996
HQ-SA	Sofia, S.	UNIV OF CHICAGO	NGL 14-001-006	Simpson, J. A.	11	1997
HQ-SA	Roman, N. G.	UNIV OF CHICAGO	NGR 14-001-147	Hobbs, L. M.	11	2005
HQ-SA	Rosendhal, J. D.	UNIV COLORADO-BOLDR	NASW 2913	Laurence, G. M	11	1679
HQ-SA	Roman, N. G.	UNIV COLORADO-BOLDR	NGR 06-003-179	Lillie, C. F.	11	1687
HQ-SA	Mitchell, J. L.	UNIV COLORADO-BOLDR	NGR 06-003-215	Speiser, T. W.	13	1691
HQ-SA	Sofia, S.	UNIV COLORADO-BOLDR	NSG 7128	McCray, R.	11	1702
HQ-SA	Roman, N. G.	UNIV OF FLORIDA	NSG 7143	Carr, T. D.	11	1869
HQ-SA	Jordon, S. D.	UNIV OF HAWAII-MANOA	NASR 5	McAllister, H. C.	13	1956
HQ-SA	Roman, N. G.	UNIV MARYLAND-BALT	NGR 21-002-010	Misner, C. W.	11	2232
HQ-SA	Sofia, S.	UNIV MARYLAND-COL PK	NGR 21-002-066	Earl, J. A.	11	2256
HQ-SA	Rosendhal, J. D.	UNIV MARYLAND-COL PK	NGR 21-002-073	Griem, H. R.	11	2257
HQ-SA	Sofia, S.	UNIV MARYLAND-COL PK	NGR 21-002-224	Gloeckler, G.	11	2260
HQ-SA	Opp, A. G.	UNIV MARYLAND-COL PK	NSG 7252	Rose, W. K.	11	2299
HQ-SA	Rosendhal, J. D.	UNIV MARYLAND-COL PK	NSG 7284	Currie, D. G.	11	2302
HQ-SA	Rosendhal, J. D.	UNIV MICH-ANN ARBOR	NGR 23-005-464	Hiltner, W. A.	11	2540
HQ-SA	Sofia, S.	U MINN-MNPLS-ST PAUL	NGR 24-005-050	Waddington, C. J.	11	2589
HQ-SA	Boggess, N. W.	U MINN-MNPLS-ST PAUL	NSG 2014	Wells, W. R.	11	2594
HQ-SA	Roman, N. G.	U MINN-MNPLS-ST PAUL	NSG 7259	Gallagher, J. S.	11	2604
HQ-SA	Roman, N. G.	U MINN-MNPLS-ST PAUL	NSR 24-005-245	Luyten, W. J.	11	2607
HQ-SA	Sofia, S.	UNIV NEW HAMP-DURHAM	NGL 30-002-021	Chupp, E. L.	11	2690
HQ-SA	Sofia, S.	UNIV NEW HAMP-DURHAM	NGR 30-002-052	Webber, W. R.	11	2691
HQ-SA	Calahan, H. D.	UNIV OF NEW MEXICO	NGR 32-004-086	Ahluwalia, H. S	13	2773
HQ-SA	Calahan, H. D.	UNIV OF SOUTHERN CAL	NGR 05-018-185	Intriligator, D. S.	13	162/
HQ-SA	Rosendhal, J. D.	UNIV TEXAS-AUSTIN	NGR 44-012-209	VanDenBout, P. A.	11	3441
HQ-SA	Roman, N. G.	UNIV TEXAS-AUSTIN	NSG 7232	Wheeler, J. C.	11	3456
HQ-SA	Rosendhal, J. D.	UNIV TEXAS-AUSTIN	NSG 7347	Bengtson, R. D.	11	3459
HQ-SA	Unavailable	UNIV TEXAS-DALLAS	NASR 177	Hanson, W. B.	31	3469
HQ-SA	Rosendhal, J. D.	UNIV OF TOLEDO	NSG 7041	Witt, A. N.	11	3100
HQ-SA	Roman, N. G.	UNIV OF TOLEDO	NSG 7138	Molnar, M. R	11	3101
HQ-SA	Roman, N. G.	UNIV OF VIRGINIA	NGL 47-005-066	Frederick, L. W.	11	3591
HQ-SA	Sofia, S.	UNIV OF WASHINGTON	NSG 7318	Lord, J. J.	11	3684
HQ-SA	Roman, N. G.	UNIV WISC-MADISON	NSG 7050	Code, A. D.	11	3728
HQ-SA	Rosendhal, J. D.	UNIV WISC-MADISON	NSG 7133	Savage, B. D.	11	3729
HQ-SA	Roman, N. G	VANDERBILT UNIVERSTY	NSG 7343	Weedman, D. W	11	3316
HQ-SA	Rosendhal, J. D.	VASSAR COLLEGE	NSG 7359	Hutchinson, J. L.	11	2973
HQ-SA	Sofia, S.	WASHINGTON UNIVERSTY	NGR 26-008-001	Israel, M. H.	11	2658
HQ-SA	Roman, N. G.	WASHINGTON UNIVERSTY	NSG 7372	Smith, W. H.	11	2666
HQ-SG	Schmerling, E. R.	UNIV OF SOUTHERN CAL	NGR 05-018-181	Vasyliunas, V. M.	13	1626
HQ-SG	Bohlin, J. D.	UNIV TENNESSEE-KNOXV	NSG 7049	Sellin, I. A.	11	3305
HQ-SL	Brunk, W. E.	AMERICAN UNIVERSITY	NSG 7274	Prakash, A.	11	1759
HQ-SL	French, B. M.	ARIZONA STATE UNIV	NGL 03-0[illegible]-001	Moore, C. B.	32	1078
HQ-SL	French, B. M.	ARIZONA STATE UNIV	NSG 7040	Larimer, J. W.	32	1081
HQ-SL	Williams, R. J.	ARIZONA STATE UNIV	NSG 7217	Holloway, J. R.	32	1082
HQ-SL	Brunk, W. E.	BRIGHAM YOUNG UNIV	NGR 45-001-032	Jones, D. E.	11	3493
HQ-SL	Dwornik, S. E.	BROWN UNIVERSITY	NGR 40-002-088	Mutch, T. A	32	3242
HQ-SL	Goldstein, B. E.	BROWN UNIVERSITY	NGR 40-002-116	Heard, J. W.	32	3244
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGL 05-002-003	Muhleman, D. O.	11	1171
HQ-SL	Bryson, R. P.	CALIF INST OF TECH	NGL 05-002-069	Anderson, D. L.	32	1173
HQ-SL	Goldstein, B. E.	CALIF INST OF TECH	NGL 05-002-105	Ahrens, T. J.	32	1174
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGL 05-002-140	Munch, G.	11	1176
HQ-SL	Brunk, W. E.	CALIF INST OF TECH	NGR 05-002-114	Muhleman, D. O.	11	1181
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-117	Murray, B. C.	32	1182
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NGR 05-002-303	Shoemaker, E. M	32	1188
HQ-SL	Bryson, R. P.	CALIF INST OF TECH	NSG 7084	Wasserburg, G. J.	32	1196
HQ-SL	Fellows, R. F	CALIF INST OF TECH	NSG 7094	Neugebauer, G.	32	1197

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NSG 7125	Albee, A. L.	19	1198
HQ-SL	Goldstein, B. E.	CALIF INST OF TECH	NSG 7129	Ahrens, T. J.	32	1199
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NSG 7155	Murray, B. C.	32	1200
HQ-SL	Dwornik, S. E.	CALIF INST OF TECH	NSG 7160	Anderson, D. L.	32	1201
HQ-SL	Goldstein, B E	CALIF INST OF TECH	NSG 7202	Burnett, D. S.	32	1203
HQ-SL	Goldstein, B. E.	CALIF INST OF TECH	NSG 7316	Melosh, H. J.	32	1205
HQ-SL	Mitz, M. A.	CALIF INST OF TECH	NSG 7376	Yung, Y. L.	31	1206
HQ-SL	French, B. M.	CAL STATE U-FULLERTN	NSG 7314	Woolum, D. S.	32	1215
HQ-SL	Goldstein, B. E.	COLUMBIA UNIVERSITY	NSG 7194	Langseth, M. G.	32	2828
HQ-SL	French, B. M.	COLUMBIA UNIVERSITY	NSG 7200	ONions, R. K.	32	2829
HQ-SL	Tarver, P.	CORNELL UNIVERSITY	NASW 2750	Wehe, R. L.	49	2837
HQ-SL	Fellows, R. F.	CORNELL UNIVERSITY	NGL 33-010-082	Sagan, C. E.	31	2841
HQ-SL	Fellows, R. F.	CORNELL UNIVERSITY	NGL 33-010-186	Gierasch, P J	31	2843
HQ-SL	Goldstein, B. E.	CORNELL UNIVERSITY	NGR 33-010-108	Turcotte, D. L.	32	2846
HQ-SL	Williams, R. J.	CORNELL UNIVERSITY	NGR 33-010-178	Kuckes, A. F.	32	2852
HQ-SL	Dwornik, S. E.	CORNELL UNIVERSITY	NGR 33-010-220	Sagan, C. E.	32	2856
HQ-SL	Brunk, W. E	CORNELL UNIVERSITY	NSG 7126	Veverka, J.	11	2865
HQ-SL	Dwornik, S. E.	CORNELL UNIVERSITY	NSG 7156	Veverka, J.	32	2866
HQ-SL	Fellows, R. F.	CORNELL UNIVERSITY	NSG 7243	Elliot, J. L.	31	2868
HQ-SL	Kochendorfer, F D.	CORNELL UNIVERSITY	NSG 7268	Harwit, M O.	32	2869
HQ-SL	Goldstein, B. E.	CORNELL UNIVERSITY	NSG 7348	Gold, T.	32	2871
HQ-SL	Brunk, W. E.	FLORIDA STATE UNIV	NGR 10-004-056	Hunt, R H	11	1841
HQ-SL	Fellows, R. F.	GEORGIA INST OF TECH	NGL 11-002-004	Edwards, H. D.	31	1923
HQ-SL	Fellows, R. F.	HARVARD UNIVERSITY	NGL 22-007-228	Goody, R. M.	31	2338
HQ-SL	Dwornik, S. E	HARVARD UNIVERSITY	NGR 22-007-269	Cameron, A G	32	2342
HQ-SL	Fellows, R. F	HARVARD UNIVERSITY	NSG 7095	Pipkin, F. M.	31	2354
HQ-SL	Williams, R. J.	HARVARD UNIVERSITY	NSG 7191	Cameron, A. G.	32	2357
HQ-SL	Brunk, W. E.	HARVARD UNIVERSITY	NSG 7332	Goody, R M.	11	2359
HQ-SL	Fellows, R. F.	KANSAS STATE UNIV	NGL 17-001-026	Williams, D.	31	2119
HQ-SL	French, B. M	LEHIGH UNIVERSITY	NGR 39-007-043	Goldstein, J. I	32	3168
HQ-SL	Smith, M. J.	MASS INST OF TECH	NASW 3008	McCord, T. B.	11	2394
HQ-SL	Kosofsky, L. J.	MASS INST OF TECH	NGL 22-009-187	Press, F	32	2399
HQ-SL	Fellows, R. F.	MASS INST OF TECH	NGL 22-009-521	Lewis, J. S	31	2402
HQ-SL	Young, R. S.	MASS INST OF TECH	NGR 22-009-102	Biemann, K	42	2407
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NGR 22-009-473	McCord, T. B.	11	2411
HQ-SL	Fellows, R. F.	MASS INST OF TECH	NGR 22-009-583	McCord, T. B.	11	2415
HQ-SL	Brunk, W. E.	MASS INST OF TECH	NGR 22-009-672	Pettengill, G. H.	11	2418
HQ-SL	Williams, R. J.	MASS INST OF TECH	NGR 22-009-790	McCord, T. B.	32	2427
HQ-SL	Williams, R. J.	MASS INST OF TECH	NSG 7010	Counselman, C. C., III	32	2477
HQ-SL	Williams, R. J.	MASS INST OF TECH	NSG 7048	McCord, T. B.	32	2478
HQ-SL	Williams, R. J.	MASS INST OF TECH	NSG 7077	Suomi, V. E.	32	2479
HQ-SL	Goldstein, B. E.	MASS INST OF TECH	NSG 7081	Toksoz, M. N.	32	2480
HQ-SL	Goldstein, B. E.	MASS INST OF TECH	NSG 7118	Counselman, C. C., III	32	2482
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NSG 7273	McCord, T. B	32	2485
HQ-SL	Dwornik, S. E.	MASS INST OF TECH	NSG 7297	Solomon, S. C.	32	2486
HQ-SL	Goldstein, B. E.	MASS INST OF TECH	NSG 7329	Solomon, S. C.	32	2488
HQ-SL	Quaide, W. L	MASS INST OF TECH	NSG 7338	Burns, R. G.	32	2490
HQ-SL	Brunk, W. E.	NEW MEX ST U-LAS CR	NGL 32-003-001	Beebe, R F.	11	2756
HQ-SL	Donn, B. D	NEW MEX ST U-LAS CR	NSG 7346	Beebe, H. A.	11	2759
HQ-SL	Dwornik, S E.	NE LOUISIANA UNIV	NSG 7357	Dehon, R A	32	2185
HQ-SL	Bryson, R. P.	OREGON STATE UNIV	NGL 38-002-020	Schmitt, R. A.	32	3125
HQ-SL	Dwornik, S. E.	OREGON STATE UNIV	NSG 7178	Komar, P. D	32	3129
HQ-SL	Bryson, R. P	PENN STATE U-UNIV PK	NGL 39-009-010	Gold, D. P.	32	3187
HQ-SL	Goldstein, B. E.	PENN STATE U-UNIV PK	NSG 7120	Muan, A	32	3212
HQ-SL	Goldstein, B. E.	PENN STATE U-UNIV PK	NSG 7193	Alexander, S S	32	3213
HQ-SL	Fellows, R. F.	POLY INST OF NY	NGR 33-006-068	Gross, S. H.	31	2893
HQ-SL	Brunk, W. E.	PRINCETON UNIVERSITY	NGR 31-001-242	Smith, W H	11	2713
HQ-SL	Brunk, W. E.	PRINCETON UNIVERSITY	NSG 7053	Danielson, R E	11	2723

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Goldstein, B. E.	PRINCETON UNIVERSITY	NSG 7080	Phinney, R. A.	32	2724
HQ-SL	Dwornik, S. E.	PRINCETON UNIVERSITY	NSG 7283	Smoluchowski, R.	32	2727
HQ-SL	French, B. M.	PURDUE UNIVERSITY	NGL 15-005-140	Lipschutz, M. E.	32	2063
HQ-SL	Goldstein, B. E.	QUEENS COLLEGE	NSG 7321	Takahashi, T.	32	2902
HQ-SL	Fellows, R. F.	RENSSELAER POLY-NY	NGL 33-018-007	Harteck, P.	31	2910
HQ-SL	Tarver, P.	RENSSELAER POLY-NY	NGL 33-018-091	Yerazunis, S. W.	49	2911
HQ-SL	Goldstein, B. E.	RICE UNIVERSITY	NSG 7032	Michel, F. C.	31	3352
HQ-SL	Fellows, R. F.	RICE UNIVERSITY	NSG 7043	Chamberlain, J. W.	31	3353
HQ-SL	Goldstein, B. E.	RICE UNIVERSITY	NSG 7361	Clayton, D. D.	32	3355
HQ-SL	Goldstein, B. E.	RICE UNIVERSITY	NSG 7362	Debremaecker, J. C.	32	3356
HQ-SL	French, B. M.	RUTGERS U-N BRUNSWK	NSG 7327	Hewins, R. H.	32	2732
HQ-SL	Goldstein, B. E.	SAN DIEGO STATE UNIV	NSG 7026	Rehfuss, D. E.	32	1230
HQ-SL	Fellows, R. F.	STANFORD UNIVERSITY	NGL 05-020-014	Eshleman, V. R.	31	1305
HQ-SL	Dwornik, S. E.	STANFORD UNIVERSITY	NGR 05-020-649	Howard, H. T.	32	1327
HQ-SL	Goldstein, B. E.	STANFORD UNIVERSITY	NSG 7029	Tyler, G. L.	32	1369
HQ-SL	Williams, R. J.	STANFORD UNIVERSITY	NSG 7117	Nur, A. M.	32	1372
HQ-SL	Donn, B. D.	STATE UNIV NY-ALBANY	NSG 7093	Phillips, O. M.	31	2928
HQ-SL	Donn, B. D.	STATE UNIV NY-ALBANY	NSG 7353	Schuerman, D. W.	11	2932
HQ-SL	Dwornik, S. E.	STATE UNIV NY-BUFFAL	NGR 33-015-108	King, J. S.	32	2937
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NGR 33-015-139	Varanasi, P.	31	2944
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NGR 33-015-141	Owen, T.	11	2945
HQ-SL	Stuartalexander, D. E.	STATE U NY-STONY BR"	NSG 7036	Hartung, J. B.	32	2956
HQ-SL	Williams, R. J.	STATE U NY-STONY BRK	NSG 7150	Papike, J. J.	32	2957
HQ-SL	Williams, R. J.	STATE U NY-STONY BRK	NSG 7225	Schaeffer, O. A.	32	2958
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NSG 7286	Knacke, R. F.	11	2960
HQ-SL	Brunk, W. E.	STATE U NY-STONY BRK	NSG 7320	Caldwell, J. J.	11	2961
HQ-SL	Fellows, R. F.	TEXAS A&M UNIVERSITY	NGR 44-001-117	Plass, G. N.	31	3383
HQ-SL	Williams, R. J.	TEXAS A&M UNIVERSITY	NGR 44-001-152	Rowe, M. W.	32	3384
HQ-SL	Goldstein, B. E.	TEXAS A&M UNIVERSITY	NSG 7189	Gangi, A. F.	32	3394
HQ-SL	Dwornik, S. E.	TEXAS A&M UNIVERSITY	NSG 7370	Young, A. T.	32	3395
HQ-SL	Dwornik, S. E.	UNIV OF ARIZONA	NASW 2944	Strom, R. G.	11	1099
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-002	Sonett, C. P.	11	1106
HQ-SL	Fellows, R. F.	UNIV OF ARIZONA	NGL 03-002-019	Hoenig, S. A.	31	1108
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-081	Gehrels, T.	11	1110
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGL 03-002-122	Roemer, E.	11	1111
HQ-SL	Williams, R. J.	UNIV OF ARIZONA	NGL 03-002-191	Strom, R. G.	32	1112
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NGR 03-002-219	Gehrels, A. M.	11	1116
HQ-SL	Dwornik, S. E.	UNIV OF ARIZONA	NGR 03-002-370	Sonett, C. P.	32	1119
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7011	Wilkening, L. L	32	1128
HQ-SL	Goldstein, B. E.	UNIV OF ARIZONA	NSG 7020	Sonett, C. P.	32	1129
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7045	Hubbard, W. B.	11	1131
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7070	Fink, U. W.	11	1132
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7114	Rieke, G. H.	11	1134
HQ-SL	Dwornik, S. E.	UNIV OF ARIZONA	NSG 7146	Strom, R. G.	32	1136
HQ-SL	Williams, R. J.	UNIV OF ARIZONA	NSG 7201	Greenberg, R.	32	1138
HQ-SL	Brunk, W. E.	UNIV OF ARIZONA	NSG 7238	Hubbard, W. B.	11	1139
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7246	Gehrels, A. M.	32	1140
HQ-SL	French, B. M.	UNIV OF ARIZONA	NSG 7249	Zellner, B. H.	32	1141
HQ-SL	Fellows, R. F.	UNIV OF ARIZONA	NSG 7265	Smith, B.	31	1142
HQ-SL	Donn, B. D.	UNIV OF ARIZONA	NSG 7374	Hsieh, K. C.	11	1147
HQ-SL	Goldstein, B. E.	U ARKANSAS-MONTICELO	NSG 7216	Dehon, R. A.	32	1155
HQ-SL	Dwornik, S. E.	U ARKANSAS-MONTICELO	NSG 7244	Dehon, R. A.	32	1156
HQ-SL	Fellows, R. F.	UNIV CALIF-BERKELEY	NGL 05-003-286	Pimental, G. C.	31	1399
HQ-SL	Brunk, W. E.	UNIV CALIF-BERKELEY	NGR 05-003-452	Townes, C. H.	11	1408
HQ-SL	Goldstein, B. E.	UNIV CALIF-BERKELEY	NSG 7127	Anderson, K. A.	39	1435
HQ-SL	Brunk, W. E.	UNIV CALIF-BERKELEY	NSG 7152	Silver, S	11	1437
HQ-SL	Smith, M. J.	UNIV CALIF-BERKELEY	NSG 7277	Lin, R. P.	31	1441
HQ-SL	Goldstein, B. E.	UNIV CALIF-L ANGELES	NGL 05-007-002	Kaula, W. M.	32	1474

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Bryson, R. P.	UNIV CALIF-L ANGELES	NGL 05-007-006	Kennedy, G. C.	32	1476
HQ-SL	Dwornik, S. E.	UNIV CALIF-L ANGELES	NGR 05-007-317	Schubert, G.	32	1483
HQ-SL	French, B. M.	UNIV CALIF-L ANGELES	NGR 05-007-329	Wasson, J. T.	32	1485
HQ-SL	Goldstein, B. E.	UNIV CALIF-L ANGELES	NGR 05-007-351	Coleman, P. J., Jr.	32	1487
HQ-SL	Williams, R. J.	UNIV CALIF-L ANGELES	NSG 7052	Kieffer, S. W.	32	1505
HQ-SL	Fellows, R. F.	UNIV CALIF-L ANGELES	NSG 7164	Schubert, G.	31	1507
HQ-SL	Fellows, R. F.	UNIV CALIF-L ANGELES	NSG 7239	Aller, L. H.	31	1509
HQ-SL	Dwornik, S. E.	UNIV CALIF-L ANGELES	NSG 7282	Kieffer, H. H.	32	1511
HQ-SL	Fellows, R. F.	UNIV CALIF-L ANGELES	NSG 7295	Coleman, P. J., Jr.	31	1512
HQ-SL	Goldstein, B. E.	UNIV CALIF-L ANGELES	NSG 7315	Schubert, G.	32	1513
HQ-SL	French, B. M.	UNIV CALIF-L ANGELES	NSG 7335	Boynton, W. V.	32	1514
HQ-SL	Williams, R. J.	UNIV CALIF-SAN DIEGO	NGL 05-009-002	Arrhenius, G.	32	1532
HQ-SL	French, B. M.	UNIV CALIF-SAN DIEGO	NGL 05-009-004	Arnold, J. R.	32	1533
HQ-SL	Goldstein, B. E.	UNIV CALIF-SAN DIEGO	NGL 05-009-005	Suess, H. E.	19	1534
HQ-SL	Smith, M. J.	UNIV CALIF-SAN DIEGO	NGR 05-005-005	Arnold, J. R.	32	1538
HQ-SL	Donn, B. D.	UNIV CALIF-SAN DIEGO	NGR 05-009-110	Alfven, H.	11	1543
HQ-SL	Goldstein, B. E.	UNIV CALIF-SAN DIEGO	NSG 7027	Arnold, J. R.	32	1559
HQ-SL	Dwornik, S. E.	UNIV CALIF-SAN DIEGO	NSG 7102	Alfven, H.	32	1561
HQ-SL	French, B. M.	UNIV CALIF-SAN DIEGO	NSG 7121	MacDougall, J. D	32	1562
HQ-SL	Dwornik, S. E.	UNIV CALIF-S BARBARA	NGR 05-010-062	Peale, S. J.	32	1578
HQ-SL	French, B. M.	UNIV OF CHICAGO	NGL 14-001-010	Anders, E.	32	1998
HQ-SL	Dwornik, S. E.	UNIV OF CHICAGO	NGR 14-001-135	Turkevich, A. L.	32	2004
HQ-SL	Fellows, R. F.	UNIV OF CHICAGO	NGR 14-001-194	Kaplan, L. D.	31	2006
HQ-SL	French, B. M.	UNIV OF CHICAGO	NGR 14-001-249	Grossman, L.	32	2010
HQ-SL	Goldstein, B. E.	UNIV OF CHICAGO	NSG 7212	Schramm, D. N	32	2014
HQ-SL	Brunk, W. E.	UNIV OF CINCINNATI	NGR 36-004-075	Herget, P.	11	3076
HQ-SL	Fellows, R. F.	UNIV COLORADO-BOLDR	NGL 06-003-052	Barth, C. A.	31	1680
HQ-SL	Fellows, R. F.	UNIV COLORADO-BOLDR	NGL 06-003-064	Barth, C. A.	31	1682
HQ-SL	Fellows, R. F.	UNIV COLORADO-BOLDR	NGR 06-003-127	Barth, C. A.	31	1685
HQ-SL	Dwornik, S. E.	UNIV COLORADO-BOLDR	NGR 06-003-199	Peterson, J. E.	32	1689
HQ-SL	Goldstein, B. E.	UNIV COLORADO-BOLDR	NSG 7319	Smith, M. L.	32	1710
HQ-SL	Strickland, A. T.	UNIV COLORADO-BOLDR	NSG 7344	Levine, J.	13	1711
HQ-SL	Fellows, R. F.	UNIV OF FLORIDA	NGL 10-005-008	Green, A. S	31	1856
HQ-SL	Dwornik, S. E.	UNIV OF GEORGIA	NGR 11-003-037	Howard, J. H.	32	1955
HQ-SL	Strickland, A. T.	UNIV OF HAWAII-MANOA	NASW 2326	Jefferies, J. T.	11	1957
HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NGL 12-001-057	Jefferies, J. T.	11	1962
HQ-SL	Strickland, A. T	UNIV OF HAWAII-MANOA	NGR 12-001-127	Jefferies, J. T.	32	1965
HQ-SL	Shirey, W. H.	UNIV OF HAWAII-MANOA	NSG 7179	Berg, E.	19	1969
HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NSG 7310	McCord, T. B.	11	1970
HQ-SL	Goldstein, B. E.	UNIV OF HAWAII-MANOA	NSG 7312	McCord, T. B	32	1971
HQ-SL	Brunk, W. E.	UNIV OF HAWAII-MANOA	NSG 7323	McCord, T. B.	11	1972
HQ-SL	Williams, R. J.	UNIV HOUSTON-HOUSTON	NSG 7198	Butler, J. C.	32	3418
HQ-SL	Dwornik, S. E.	UNIV HOUSTON-HOUSTON	NSG 7228	King, E. A.	32	3419
HQ-SL	Brunk, W. E.	UNIV ILLINOIS-URBANA	NGR 14-005-176	Dickel, J. R.	11	2026
HQ-SL	Dwornik, S. E.	UNIV OF KANSAS	NGR 17-002-106	Warnke, D. E.	32	2131
HQ-SL	Goldstein, B. E.	UNIV OF KANSAS	NSG 7351	Vanschmus, W. R.	32	2152
HQ-SL	Donn, B. D.	UNIV MARYLAND-COL PK	NGR 21-002-002	Opik, E. J.	11	2255
HQ-SL	Goldstein, B. E.	UNIV MARYLAND-COL PK	NSG 7046	Adler, I	32	2297
HQ-SL	Williams, R. J.	UNIV MARYLAND-COL PK	NSG 7260	Ponnamperuma, C. A	32	2301
HQ-SL	Brunk, W. E.	UNIV MARYLAND-COL PK	NSG 7322	A'Hearn, M. F.	11	2304
HQ-SL	Goldstein, B. E.	UNIV MARYLAND-COL PK	NSG 7365	Pai, S. I.	32	2306
HQ-SL	Brunk, W. E.	UNIV OF MASS-AMHERST	NGL 22-010-023	Irvine, W. M.	11	2497
HQ-SL	Dwornik, S. E.	UNIV OF MASS-AMHERST	NGR 22-010-076	McGill, G. E.	32	2500
HQ-SL	French, B. M.	UNIV OF MIAMI	NSG 7245	Fisher, D. E.	32	1885
HQ-SL	French, B. M.	UNIV OF MIAMI	NSG 7309	Fisher, D. E.	32	1886
HQ-SL	Fellows, R. F.	UNIV MICH-ANN ARBOR	NGR 23-005-094	Liu, W. C.	31	2537
HQ-SL	Donn, B. D.	UNIV MICH-ANN ARBOR	NGR 23-005-540	Bartman, F. L	31	2543
HQ-SL	Fellows, R. F.	UNIV MICH-ANN ARBOR	NSG 7279	Donahue, T. M.	31	2564

ORIGINAL PAGE IS
OF POOR QUALITY

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-SL	Fellows, R. F.	U MINN-MNPLS-ST PAUL	NGL 24-005-009	Nier, A. O.	31	2585
HQ-SL	Fellows, R. F.	UNIV NEBRASKA-LINCLN	NGR 28-004-021	Samson, J. A.	31	2674
HQ-SL	Goldstein, B. E.	UNIV OF NEW MEXICO	NGL 32-004-011	Elston, W. E.	32	2769
HQ-SL	French, B. M.	UNIV OF NEW MEXICO	NGL 32-004-064	Keil, K	32	2771
HQ-SL	Dwornik, S. E.	UNIV OF NEW MEXICO	NGR 32-004-062	Elston, W. E.	32	2772
HQ-SL	Goldstein, B. E.	UNIV OREGON-EUGENE	NGR 38-003-020	Weill, D. F.	32	3132
HQ-SL	Kosofsky, L. J.	UNIV OF PENNSYLVANIA	NSG 7119	Friel, J. J.	32	3220
HQ-SL	Fellows, R. F.	UNIV OF PITTSBURGH	NGL 39-011-013	Fite, W. L.	31	3225
HQ-SL	Fellows, R. F.	UNIV OF PITTSBURGH	NGL 39-011-030	Zipf, E. C.	31	3226
HQ-SL	Goldstein, B. E.	UNIV OF PITTSBURGH	NGL 39-011-085	Cassidy, W. A.	32	3228
HQ-SL	Fellows, R. F.	UNIV OF PITTSBURGH	NGR 39-011-137	Biondi, M. A.	31	3229
HQ-SL	Dwornik, S. E.	UNIV OF PITTSBURGH	NSG 7147	Hapke, B. W.	11	3238
HQ-SL	Williams, R. J.	UNIV OF PITTSBURGH	NSG 7203	Hapke, B. W.	32	3239
HQ-SL	Dwornik, S. E.	UNIV OF SANTA CLARA	NGR 05-017-037	Greeley, R.	32	1609
HQ-SL	Goldstein, B. E.	UNIV OF SANTA CLARA	NSG 7141	Greeley, R.	32	1613
HQ-SL	Goldstein, B. E.	UNIV OF SANTA CLARA	NSG 7330	Aggarwal, H. R.	32	1614
HQ-SL	Fellows, R. F.	UNIV SO CAROLINA-COL	NGL 41-002-003	Durig, J. R.	31	3255
HQ-SL	Dwornik, S. E.	UNIV SO CAROLINA-COL	NSG 7076	Nummedal, D.	32	3257
HQ-SL	Brunk, W. E.	UNIV OF SOUTHERN CAL	NGR 05-018-178	Maxworthy, T.	31	1624
HQ-SL	Fellows, R. F.	UNIV OF SOUTHERN CAL	NGR 05-018-180	Judge, D. L.	31	1625
HQ-SL	Fellows, R. F.	UNIV TENNESSEE-KNOXV	NGL 43-001-006	Gallar, N. M.	31	3294
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGL 44-012-006	Wilson, W. J.	11	3437
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGL 44-012-055	Douglas, J. N.	11	3438
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-152	Trafton, L. M.	11	3439
HQ-SL	Flinn, E. A.	UNIV TEXAS-AUSTIN	NGR 44-012-165	Silverberg, E. C.	32	3440
HQ-SL	Young, R. S.	UNIV TEXAS-AUSTIN	NGR 44-012-225	Parker, P. L.	32	3442
HQ-SL	Brunk, W. E.	UNIV TEXAS-AUSTIN	NGR 44-012-282	Mulholland, J. D.	11	3444
HQ-SL	Shirey, W. H.	UNIV TEXAS-AUSTIN	NSG 7162	Shelus, P. J.	19	3455
HQ-SL	Smith, M. J.	UNIV TEXAS-AUSTIN	NSG 7250	Muehlberger, W. R.	32	3457
HQ-SL	Dwornik, S. E.	UNIV TEXAS-AUSTIN	NSG 7326	Baker, V. R.	32	3458
HQ-SL	Goldstein, B. E.	UNIV TEXAS-AUSTIN	NSG 7363	Muehlberger, W. R	32	3460
HQ-SL	Fellows, R. F.	UNIV TEXAS-DALLAS	NGL 44-004-026	Johnson, F. S.	31	3470
HQ-SL	Goldstein, B. E.	UNIV TEXAS-DALLAS	NSG 7024	Hodges, R. R., Jr.	31	3478
HQ-SL	Donn, B. D.	UNIV OF TOLEDO	NSG 7301	Delsemme, A. H.	11	3102
HQ-SL	Fellows, R. M.	UNIV OF TOLEDO	W-14168	Delsemme, A. H.	19	3103
HQ-SL	Dwornik, S. E.	UNIV OF VIRGINIA	NGR 47-005-172	Howard, A.	32	3592
HQ-SL	Brunk, W. E.	UNIV OF VIRGINIA	NSG 7364	Ianna, P. A.	11	3610
HQ-SL	French, B. M.	UNIV OF WASHINGTON	NGR 48-002-033	Hodge, P. W.	11	3668
HQ-SL	Brunk, W. E.	UNIV OF WASHINGTON	NGR 48-002-142	Greene, T. F.	11	3671
HQ-SL	Dwornik, S. E.	UNIV OF WASHINGTON	NGR 48-002-153	Vgolihi, F. C.	32	3672
HQ-SL	Fellows, R. F.	UNIV OF WASHINGTON	NSG 7085	Leovy, C. B.	31	3680
HQ-SL	Goldstein, B. E.	UNIV OF WASHINGTON	NSG 7173	Adams, J. B.	32	3681
HQ-SL	Goldstein, B. E.	UNIV OF WASHINGTON	NSG 7174	Adams, J. B.	32	3682
HQ-SL	Goldstein, B. E.	UNIV OF WASHINGTON	NSG 7313	McCallum, I. S.	32	3683
HQ-SL	Fellows, R. F.	UNIV WISC-MADISON	NGR 50-002-189	Suomi, V. E.	31	3717
HQ-SL	Goldstein, B. E.	UNIV WISC-MADISON	NSG 7215	Taylor, J. W.	32	3733
HQ-SL	Dwornik, S. E.	UNIV WISC-PARKSIDE	NGR 50-0[illegible]-001	Smith, E. I.	32	3732
HQ-SL	Goldstein, B. E.	VA MILITARY INSTITUT	NSG 7355	Schreiber, H. D.	32	3614
HQ-SL	Fellows, R. F.	VIRGINIA POLY INST	NGL 47-004-080	McGee, H. A.	11	3623
HQ-SL	Goldstein, B. E.	WASHINGTON UNIVERSTY	NSG 7016	Hohenberg, C. M.	32	2663
HQ-SL	Dwornik, S. E.	WASHINGTON UNIVERSTY	NSG 7087	Arvidson, R. E.	32	2664
HQ-SL	Brunk, W. E.	WASHINGTON UNIVERSTY	NSG 7334	Smith, W. H.	11	2665
HQ-SL	Dwornik, S. E.	WEST TEXAS ST UNIV	NGR 44-015-003	Underwood, J. R	32	3489
HQ-SL	Fellows, R. F.	YALE UNIVERSITY	NGL 07-004-043	Cross, R. J., Jr.	31	1741
HQ-SL	Williams, R. J.	YALE UNIVERSITY	NGR 07-004-166	Turekian, K. K.	32	1743
HQ-SL	Unavailable	YALE UNIVERSITY	NSG 400	Clark, S. P., Jr.	32	1744
HQ-SM	Shirey, W. H.	UNIV TEXAS-AUSTIN	NASW 2974	Silverberg, E. C.	19	3436
HQ-ST	Cauffman, D. P.	BOSTON COLLEGE	NSG 7190	Eather, R. H.	13	2315

NASA'S UNIVERSITY PROGRAM
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-ST	Taylor, W. W.	BOSTON UNIVERSITY	NSG 7254	Mendillo, M.	19	2321
HQ-ST	Cauffman, D P.	BRIGHAM YOUNG UNIV	NGR 45-001-011	Jones, D E.	39	3492
HQ-ST	Timothy, A. F.	CALIF INST OF TECH	NGL 05-002-034	Zirin, H.	11	1172
HQ-ST	Timothy, A. F.	CALIF INST OF TECH	NGR 05-002-345	Zirin, H.	13	1190
HQ-ST	Taylor, W. W.	CATHOLIC UNIVERSITY	NGR 09-005-063	Whang, Y. C.	13	1760
HQ-ST	Cauffman, D. P.	COLUMBIA UNIVERSITY	NGR 33-008-183	Wolff, R. S.	11	2812
HQ-ST	Cauffman, D. P.	CORNELL UNIVERSITY	NGR 33-010-161	Farley, D. T.	13	2850
HQ-ST	Taylor, W. W.	DARTMOUTH COLLEGE	NGR 30-001-041	Morgan, M. G.	13	2682
HQ-ST	Taylor, W. W.	DARTMOUTH COLLEGE	NSG 7292	Sonnerup, B.	39	2685
HQ-ST	Timothy, A. F	HARVARD UNIVERSITY	NGL 22-007-006	Parkinson, W H.	13	2335
HQ-ST	Timothy, A. F.	HARVARD UNIVERSITY	NGR 22-007-202	Parkinson, W. H.	11	2340
HQ-ST	Timothy, A. F.	HARVARD UNIVERSITY	NSG 7175	Reeves, E. M.	13	2355
HQ-ST	Taylor, W. W.	JOHNS HOPKINS UNIV	NSG 7055	Krimigis, S. M.	13	2228
HQ-ST	Taylor, W. W.	MASS INST OF TECH	NGL 22-009-015	Bridge, H. S.	13	2396
HQ-ST	Timothy, A. F	MICHIGAN STATE UNIV	NSG 7293	Stein, R. F	13	2508
HQ-ST	Cauffman, D. P.	PENN STATE U-UNIV PK	NGL 39-009-003	Nisbet, J S.	13	3185
HQ-ST	Taylor, W. W.	POLY INST OF NY	NGR 33-006-047	Gross, S. H.	13	2892
HQ-ST	Cauffman, D P.	RICE UNIVERSITY	NGL 44-006-012	Michel, F. C	13	3347
HQ-ST	Taylor, W. W.	RICE UNIVERSITY	NGR 44-006-137	Dessler, A. J	13	3349
HQ-ST	Goldstein, B. E.	RICE UNIVERSITY	NSG 7157	Freeman, J. W , Jr	32	3354
HQ-ST	Cauffman, D. P.	STANFORD UNIVERSITY	NGL 05-020-008	Helliwell, R A	13	1304
HQ-ST	Cauffman, D. P.	STANFORD UNIVERSITY	NGL 05-020-176	Crawford, F W	13	1307
HQ-ST	Timothy, A. F	STANFORD UNIVERSITY	NGL 05-020-272	Sturrock, P A.	13	1310
HQ-ST	Taylor, W. W.	STANFORD UNIVERSITY	NGR 05-020-001	DaRosa, A. V.	13	1315
HQ-ST	Timothy, A F	STANFORD UNIVERSITY	NGR 05-020-559	Wilcox, J. M.	11	1323
HQ-ST	Timothy, A. F.	STANFORD UNIVERSITY	NSG 7092	Sturrock, P. A.	11	1370
HQ-ST	Bohlin, J. D.	STATE U NY-STONY BRK	NSG 7003	Stroke, G. W.	11	2955
HQ-ST	Schmerling, E. R.	UNIV ALASKA-FAIRBNKS	NGR 02-001-087	Davis, T. N.	13	1070
HQ-ST	Schmerling, E. R.	UNIV ALASKA-FAIRBNKS	NSG 7051	Akasofu, S. I	13	1072
HQ-ST	Taylor, W. W.	UNIV ALASKA-FAIRBNKS	NSG 7281	Akasofu, S. I	39	1073
HQ-ST	King, J. H	UNIV OF ARIZONA	NGR 03-002-107	Hsieh, K. C.	13	1114
HQ-ST	Schmerling, E R	UNIV OF ARIZONA	NSG 7024	Sonett, C. P.	13	1130
HQ-ST	Timothy, A. F	UNIV OF ARIZONA	NSG 7168	Levy, E. H.	13	1137
HQ-ST	Timothy, A. F.	UNIV OF ARIZONA	NSG 7342	Goldreich, P	13	1144
HQ-ST	Schmerling, E. R.	UNIV CALIF-BERKELEY	NGL 05-003-017	Anderson, K. A.	19	1397
HQ-ST	Timothy, A. F.	UNIV CALIF-IRVINE	NSG 7375	VanHoven, G	31	1458
HQ-ST	Cauffman, D. P.	UNIV CALIF-L ANGELES	NGL 05-007-004	Coleman, P J., Jr	39	1475
HQ-ST	Taylor, W W.	UNIV CALIF-L ANGELES	NGL 05-007-190	Kennel, C. F.	19	1477
HQ-ST	Taylor, W. W.	UNIV CALIF-L ANGELES	NGR 05-007-276	Holzer, R. E	13	1481
HQ-ST	Timothy, A. F.	UNIV CALIF-L ANGELES	NSG 7158	Ulrich, R K	13	1506
HQ-ST	Taylor, W. W.	UNIV CALIF-L ANGELES	NSG 7180	Siscoe, G. L	39	1508
HQ-ST	Taylor, W. W.	UNIV CALIF-L ANGELES	NSG 7276	Coleman, P. J., Jr.	39	1510
HQ-ST	Cauffman, D. P.	UNIV CALIF-SAN DIEGO	NGL 05-005-007	McIlwain, C. E.	13	1531
HQ-ST	Taylor, W. W.	UNIV CALIF-SAN DIEGO	NGR 05-009-075	Banks, P M	13	1540
HQ-ST	Cauffman, D. P	UNIV CALIF-SAN DIEGO	NGR 05-009-076	Fejer, J. A.	13	1541
HQ-ST	Bohlin, J. D.	UNIV CALIF-SAN DIEGO	NSG 7100	Hudson, H. S	13	1560
HQ-ST	Timothy, A. F.	UNIV CALIF-SAN DIEGO	NSG 7161	Peterson, L F	13	1563
HQ-ST	Taylor, W. W.	UNIV OF CHICAGO	NSG 7288	Simpson, J. A	31	2015
HQ-ST	Timothy, A F	UNIV COLORADO-BOLDR	NGL 06-003-057	Cooper, J.	13	1681
HQ-ST	Timothy, A. F.	UNIV COLORADO-BOLDR	NGR 06-003-069	Barth, C. A	11	1684
HQ-ST	Timothy, A. F.	UNIV COLORADO-BOLDR	NSG 7130	Hansen, E.	13	1703
HQ-ST	Timothy, A. F.	UNIV COLORADO-BOLDR	NSG 7165	Chipman, E. G.	13	1704
HQ-ST	Timothy, A F.	UNIV COLORADO-BOLDR	NSG 7166	Roberts, W O	13	1705
HQ-ST	Bohlin, D. J.	UNIV COLORADO-BOLDR	NSG 7287	Dulk, G. A.	13	1708
HQ-ST	Timothy, A. F.	UNIV COLORADO-BOLDR	NSG 7291	Thomas, R N.	13	1709
HQ-ST	Schmerling, E. R.	UNIV OF DENVER	NGR 06-004-058	Patel, V. L.	13	1722
HQ-ST	Taylor, W. W.	UNIV OF DENVER	NGR 06-004-060	Roederer, J. G.	13	1723
HQ-ST	Timothy, A. F.	UNIV OF HAWAII-MANOA	NGL 12-001-011	Jefferies, J T	11	1960

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NASA'S UNIVERSITY PROGRA :
APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

TECH OFF LOC	TECHNICAL OFFICER	INSTITUTION	GRANT/ CONTRACT NUMBER	FIRST PRINCIPAL INVESTIGATOR	FIELD CODE	ACC NO.
HQ-ST	Schmerling, E. R.	UNIV HOUSTON-HOUSTON	NGR 44-005-133	Sheldon, W. R.	31	3412
HQ-ST	Cauffman, D. P.	UNIV OF IOWA	NGL 16-001-002	VanAllen, J. A.	13	2111
HQ-ST	Cauffman, D. P.	UNIV OF IOWA	NGL 16-001-043	Montgomery, D. C.	13	2112
HQ-ST	Cauffman, D. P.	UNIV MARYLAND-COL PK	NGL 21-002-005	Wu, C. S.	19	2253
HQ-ST	Timothy, A. F.	UNIV MARYLAND-COL PK	NGR 21-002-199	Kundu, M. R.	13	2259
HQ-ST	Timothy, A. F.	UNIV MARYLAND-COL PK	NSG 7285	Kundu, M. R.	13	2303
HQ-ST	Timothy, A. F.	UNIV OF MASS-AMHERST	NGL 22-010-025	Strong, J.	11	2498
HQ-ST	Bohlin, D. J.	UNIV MICH-ANN ARBOR	NGL 23-005-275	Mohler, O. C.	11	2535
HQ-ST	Cauffman, D. P.	UNIV MICH-ANN ARBOR	NGR 23-005-015	Nagy, A. F.	31	2536
HQ-ST	King, J. H.	UNIV MICH-ANN ARBOR	NGR 23-005-320	Samir, U.	13	2538
HQ-ST	Cauffman, D P.	U MINN-MNPLS-ST PAUL	NGL 24-005-008	Winckler, J. R.	13	2584
HQ-ST	Cauffman, D. P.	U MINN-MNPLS-ST PAUL	NSG 7005	London, J.	39	2600
HQ-ST	Taylor, W. L.	U MINN-MNPLS-ST PAUL	NSG 7108	Kellogg, P. J.	19	2601
HQ-ST	Cauffman, D. P.	U MINN-MNPLS-ST PAUL	NSG 7237	Cahill, L. J., Jr.	19	2603
HQ-ST	Timothy, A. F.	UNIV NEW HAMP-DURHAM	NGL 30-002-018	Chupp, E. L.	13	2689
HQ-ST	Cauffman, D. P.	UNIV NEW HAMP-DURHAM	NGR 30-002-054	Arnoldy, R. L.	13	2692
HQ-ST	Timothy, A. F.	UNIV NEW HAMP-DURHAM	NGR 30-002-104	Chupp, E. L.	13	2693
HQ-ST	Timothy, A. F.	UNIV TEXAS-AUSTIN	NGR 44-012-258	Bengtson, P. D.	11	3443
HQ-ST	Cauffman, D. P.	UNIV TEXAS-DALLAS	NGR 44-004-030	Heikkila, W. J.	13	3472
HQ-ST	Taylor, W. W.	UNIV TEXAS-DALLAS	NGR 44-004-120	Hanson, W. B	31	3473
HQ-ST	Cauffman, D. P.	UNIV OF WASHINGTON	NGR 48-002-154	Parks, G. K.	13	3673
HQ-ST	Cauffman, D. P.	UNIV WISC-MADISON	NGR 50-002-162	Scherb, F.	13	3716
HQ-ST	Cauffman, D. P.	UTAH STATE UNIV	NSG 7289	Banks, P. M.	31	3512
HQ-SU	King, J.	HARVARD UNIVERSITY	NASW 2952	McElroy, M. B.	33	2334
HQ-SU	Reed, E. I.	HARVARD UNIVERSITY	NSG 2031	McElroy, M. B.	31	2345
HQ-SU	Seals, R. K., Jr.	PENN STATE U-UNIV PK	NSG 7350	Hale, L. C.	31	3214
HQ-SU	Greenwood, L. R.	STATE UNIV NY-ALBANY	NSG 7222	Kiang, C. S.	31	2929
HQ-SU	King, J., Jr.	STATE UNIV NY-ALBANY	NSG 7230	Weinberg, J. L.	31	2930
HQ-SU	Seals, R. K., Jr.	UNIV CALIF-IRVINE	NSG 7208	Molina, M. J	31	1457
HQ-SU	Tilford, S. G.	UNIV OF CHICAGO	NSG 7356	Kaplan, L. D.	31	2017
HQ-SU	King, J., Jr.	UNIV COLORADO-BOLDR	NSG 7224	London, J.	31	1706
HQ-SU	Seals, R. K., Jr.	UNIV COLORADO-BOLDR	NSG 7231	Thomas, R. J.	31	1707
HQ-SU	Reed, E. I.	UNIV OF DENVER	NSG 7271	Fernald, F. G.	31	1729
HQ-SU	Seals,, R. K., Jr.	UNIV OF DENVER	NSG 7354	Murcray, D. G.	31	1730
HQ-SU	King, J.	UNIV ILLINOIS-URBANA	W-14133	Unavailable	31	2042
HQ-SU	Greenwood, L. R.	UNIV MARYLAND-COL PK	NSG 7340	Ginter, M. L.	13	2305
HQ-SU	Tilford, S. G.	UNIV MICH-ANN ARBOR	NASW 3065	Anderson, J G.	11	2533
HQ-SU	Tilford, S. G.	UNIV MICH-ANN ARBOR	NSG 7187	Cicerone, R J.	12	2562
HQ-SU	Tilford, S. G.	UNIV MICH-ANN ARBOR	NSG 7209	Donahue, T M.	31	2563
HQ-SU	Seals, R. K., Jr.	U MINN-MNPLS-ST PAUL	NSG 7221	Mauersberger, K	31	2602
HQ-SU	Tilford, S. G.	UNIV OREGON-EUGENE	NSG 7360	Nolt, I. G.	31	3135
HQ-SU	Tilford, S. G.	UNIV OF PITTSBURGH	NGR 39-011-161	Kaufman, F.	12	3230
HQ-SU	King, J., Jr.	UNIV OF WYOMING	NSG 7207	Hofmann, D. J.	31	3739
HQ-SU	Simon, N. K.	UNIV OF WYOMING	NSG 7349	Hofmann, D. J.	31	3740
HQ-SU	Tilford, S. G.	UTAH STATE UNIV	NSG 7206	Moore, W. M.	12	3510
HQ-SU	Greenwood, L. R.	UTAH STATE UNIV	NSG 7210	Baker, K D.	31	3511
HQ-SU	Seals, R. K., Jr	WASHINGTON ST UNIV	NSG 7214	Rasmussen, R. A.	31	3689
HQ-TN	Bavely, J. C.	UNIV OF ROME	NASW 2155	Broglio, L.	11	3753
HQ-U	Monroe, R.	OREGON STATE UNIV	NASW 3012	Bowman, B.	99	3123
HQ-U	Kelly, M.	UNIV OKLAHOMA-NORMAN	NASW 3020	Thomas, G.	99	3116